

Access DB# 135668

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: DAWN GARRETT Examiner #: 76107 Date: 10/19/2004
Art Unit: 1774 Phone Number: 272-1523 Serial Number: 10757783
Mail Box and Bldg/Room Location: Remsen 10A54 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Charge Transporting Material, Organic Electroluminescent Element and Light Emitting Panel
Inventors (please provide full names):

JUNJI KIDO, SATOSHI SUZUKI, KIYOSHI ITOH

Earliest Priority Filing Date: 1/15/2004

For Sequence Searches Only Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search formula (1) shown in claim 1.

Claims attached.

STAFF USE ONLY

Searcher: EL Type of Search Vendors and cost where applicable
NA Sequence (#) STN \$255.71
Searcher Phone #: AA Sequence (#) Dialog
Searcher Location: Structure (#) X (2) Questel/Orbit
Date Searcher Picked Up: Bibliographic Dr. Link
Date Completed: 10-22-04 Litigation Lexis/Nexis
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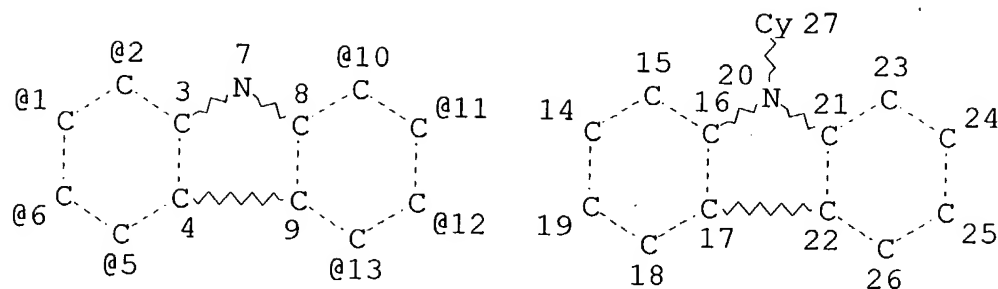
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FILE 'CAOLD'
L7 0 S L6

FILE 'ZCAPLUS'
L8 19 S L6

FILE 'REGISTRY'

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L4 STR



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NODE ATTRIBUTES:

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GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 29

STEREO ATTRIBUTES: NONE

L6 35 SEA FILE=REGISTRY SSS FUL L4 AND L2

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SEARCH TIME: 00.00.01

35 ANSWERS

=> file zcaplus

FILE 'ZCAPLUS'

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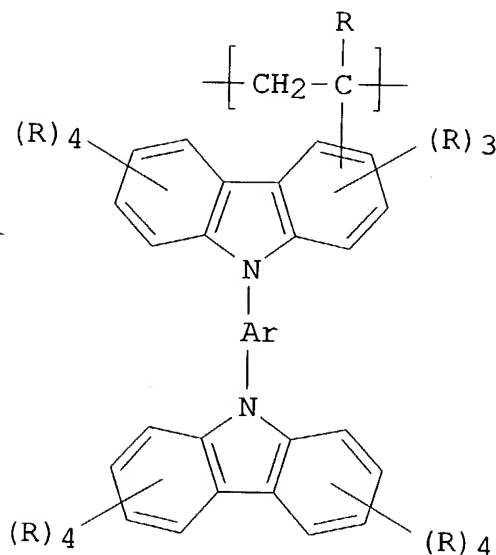
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L8 ANSWER 1 OF 19 ZCAPLUS COPYRIGHT 2004 ACS on STN

2004:632535 Document No. 141:182066 Organic electroluminescent device showing improved luminous efficiency and its use for display panel. Kido, Junji; Suzuki, Satoshi; Ito, Kiyoshi (Dainippon Printing Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2004220986 A2 20040805, 18

pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-8874
20030116.

GI



I

AB The title electroluminescent device includes a polyvinyl carbazole compd. having a structural repeating unit I (Ar = C6-60-arylene, C4-60-heterocyclyl; R = H, C1-20-alkyl, C1-20-alkoxy, C1-20-alkylthio, C1-60-alkylsilyl, C1-40-alkylamino, C6-60-aryl, C6-60-aryloxy, C7-60-arylalkyl, C7-60-arylalkoxy, C8-60-arylalkenyl, C6-60-arylamino, C4-60-heterocyclyl, cyano, nitro, halo) as a charge transport material in an electroluminescent layer. The electroluminescent layer also contains an iridium phosphor compd.

IT 728045-12-3P

(charge transport material; org. electroluminescent device showing improved luminous efficiency and its use for display panel)

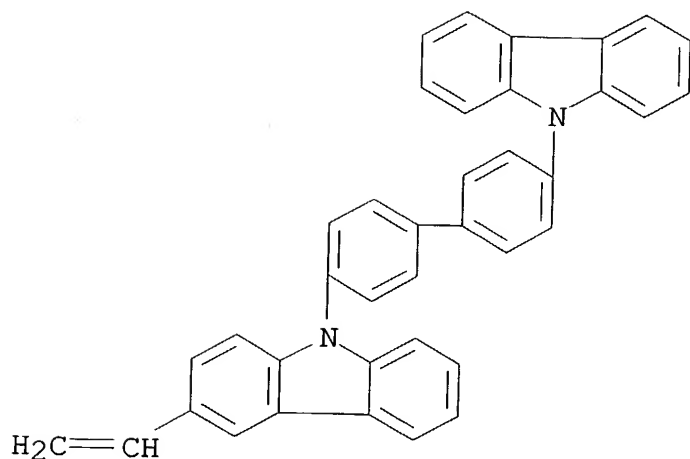
RN 728045-12-3 ZCAPLUS

CN 9H-Carbazole, 9-[4'-(9H-carbazol-9-yl)[1,1'-biphenyl]-4-yl]-3-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 728045-11-2

CMF C38 H26 N2

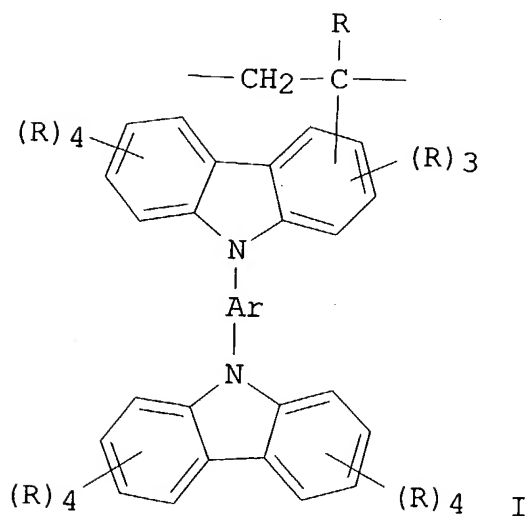


IT 728045-12-3P

(charge transport material; org. electroluminescent device showing improved luminous efficiency and its use for display panel)

L8 ANSWER 2 OF 19 ZCAPLUS COPYRIGHT 2004 ACS on STN
2004:631948 Document No. 141:158204 Charge-transporting materials for organic electronic devices. Kido, Junji; Suzuki, Satoshi; Ito, Kiyoshi (Dainippon Printing Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2004217837 A2 20040805, 17 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-8873 20030116.

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AB Title materials have .gtoreq.1 carbazole-contg. repeating units I [Ar = (un)substituted C6-60 arylene or C4-60 heterocyclic group; R = H, C1-20 alkyl, alkoxy, or alkylthio, C1-60 alkylsilyl, C1-40 alkylamino, C6-60 aryl or aryloxy, C7-60 arylalkyl or arylalkoxy, C8-60 arylalkenyl, C6-60 arylamino, C4-60 heterocyclic group, cyano, NO₂, halo]. The materials are useful for electrophotog. photoreceptors, electroluminescent devices, optical sensors, and solar cells. The materials show good charge-transporting property and high coatability and are difficult to crystn.

IT 728045-12-3P

(carbazole-contg. polymer charge-transporting materials with good coatability)

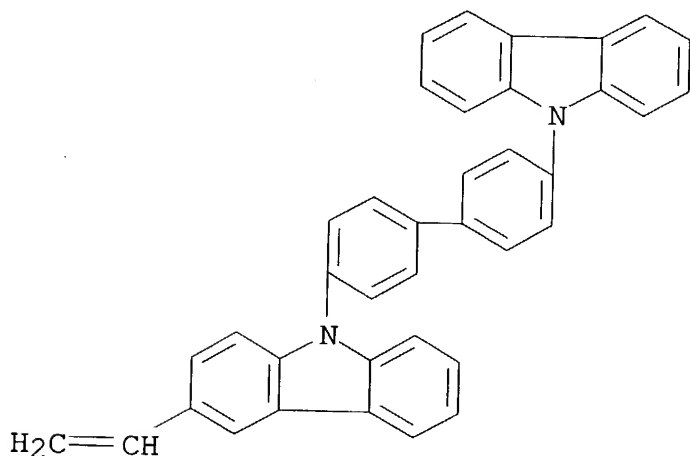
RN 728045-12-3 ZCAPLUS

CN 9H-Carbazole, 9-[4'-(9H-carbazol-9-yl)[1,1'-biphenyl]-4-yl]-3-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 728045-11-2

CMF C38 H26 N2



IT 728045-12-3P

(carbazole-contg. polymer charge-transporting materials with good coatability)

L8 ANSWER 3 OF 19 ZCAPLUS COPYRIGHT 2004 ACS on STN
2004:530380 Document No. 141:96344 Organic electroluminescent device for displays and illumination source and its production method. Kita, Hiroshi; Yamada, Taketoshi; Suzurizato, Yoshiyuki; Ueda, Noriko (Konica Minolta Holdings Inc., Japan). Jpn. Kokai Tokkyo

Koho JP 2004185967 A2 20040702, 65 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 2002-351157 20021203.

AB The invention relates to an org. electroluminescent device comprising a light-emitting layer contg. a phosphorescent dopant and a multifunctioning polymer, wherein, at least, the two of functional mol. units selected from a luminescent host unit, a hole transporting unit, and an electron transporting unit constitute the multifunctioning polymer.

IT 714976-25-7 714976-38-2
(org. electroluminescent device having phosphorescent dopant and multifunctioning polymer in light emitting layer)

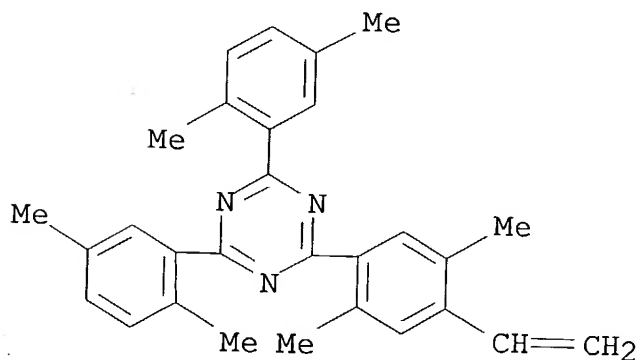
RN 714976-25-7 ZCAPLUS

CN [1,1'-Biphenyl]-4-amine, 4'-ethenyl-N,N-bis(4'-ethenyl-2,2'-dimethyl[1,1'-biphenyl]-4-yl)-2,2'-dimethyl-, polymer with 2,4-bis(2,5-dimethylphenyl)-6-(4-ethenyl-2,5-dimethylphenyl)-1,3,5-triazine and 9-[4'-(9H-carbazol-9-yl)-2,2'-dimethyl[1,1'-biphenyl]-4-yl]-3-ethenyl-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 714976-24-6

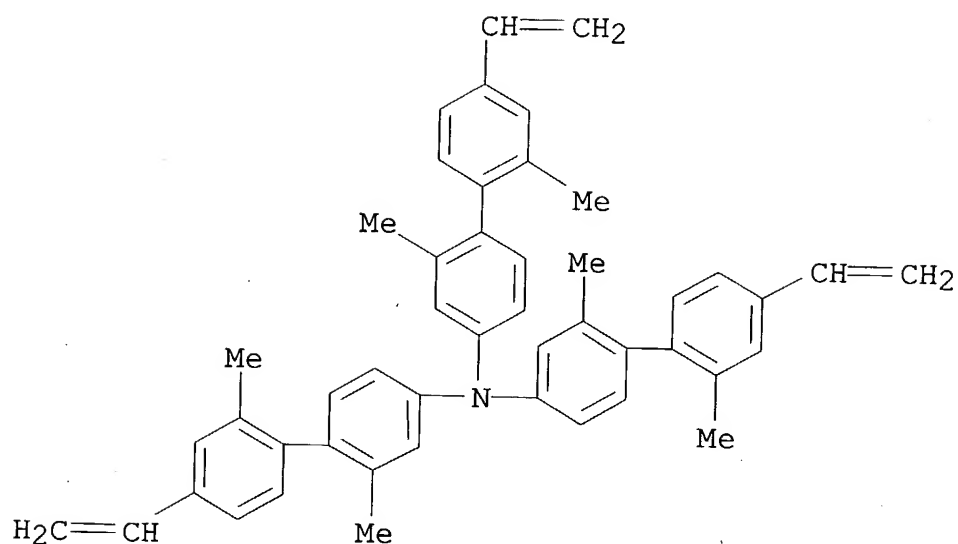
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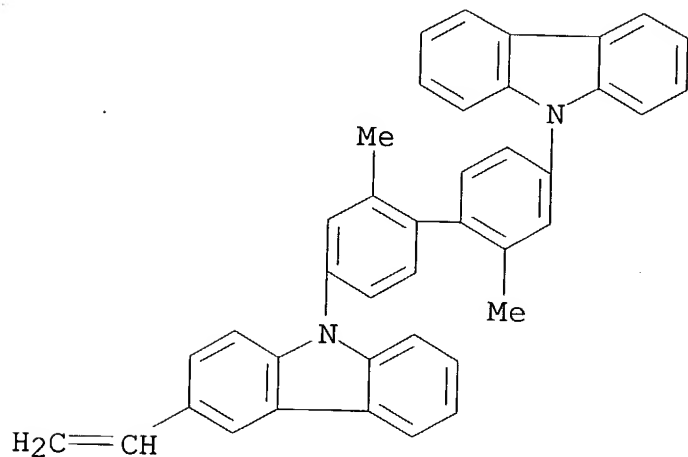
CMF C48 H45 N



CM 3

CRN 714976-22-4

CMF C40 H30 N2



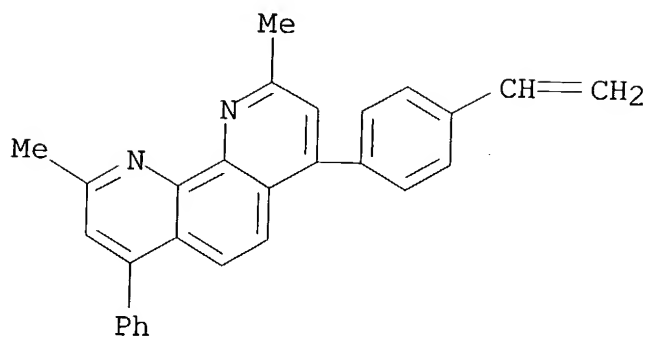
RN 714976-38-2 ZCAPLUS

CN Benzenamine, 4,4'-[[4-[(4-ethenylphenyl)phenylamino]-2,5-dimethylphenyl]methylene]bis[2,5-dimethyl-N,N-diphenyl-, polymer with 9-[4'-(9H-carbazol-9-yl)-2,2'-dimethyl[1,1'-biphenyl]-4-yl]-3-ethenyl-9H-carbazole and 4-(4-ethenylphenyl)-2,9-dimethyl-7-phenyl-1,10-phenanthroline (9CI) (CA INDEX NAME)

CM 1

CRN 714976-37-1

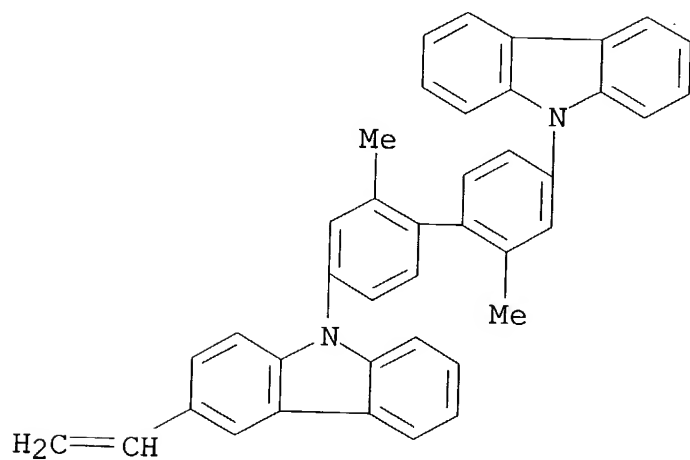
CMF C28 H22 N2



CM 2

CRN 714976-22-4

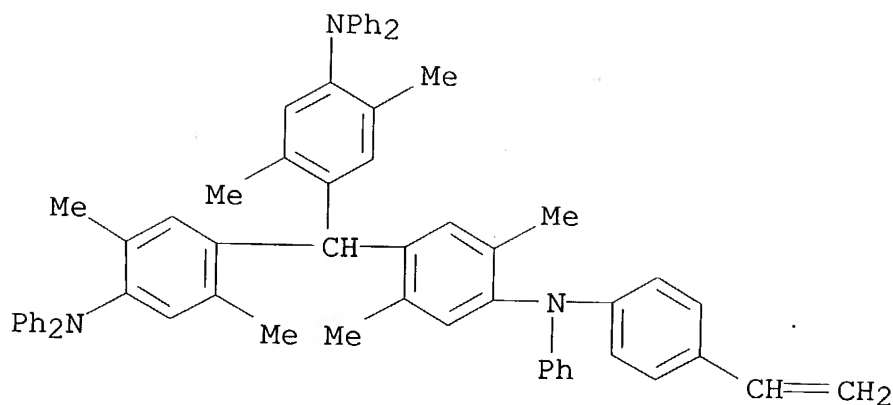
CMF C40 H30 N2



CM 3

CRN 714976-20-2

CMF C63 H57 N3



IT 714976-25-7 714976-38-2

(org. electroluminescent device having phosphorescent dopant and multifunctioning polymer in light emitting layer)

L8 ANSWER 4 OF 19 ZCAPLUS COPYRIGHT 2004 ACS on STN
 2004:250473 Document No. 140:294524 Organic electroluminescent device.
 Ishii, Toru; Seki, Mieko; Yoneyama, Hiroto; Okuda, Daisuke; Hirose,
 Eiichi; Ozaki, Tadayoshi; Agata, Takeshi; Mashimo, Kiyokazu; Sato,
 Katsuhiko (Fuji Xerox Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP
 2004095427 A2 20040325, 47 pp. (Japanese). CODEN: JKXXAF.
 APPLICATION: JP 2002-256497 20020902.

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The invention relates to an org. electroluminescent device comprising charge transporting polyurethane contg. a partial structure represented by I and II [X = divalent arom. group; T = C1-6 divalent chain hydrocarbon, and C2-10 divalent branched hydrocarbon; R1 = H, C1-10 hydrocarbon, C1-4 alkoxy, cyano, etc.; k = 0 or 1].

IT 675620-94-7P 675620-95-8P 675620-97-0P
 675620-98-1P 675621-00-8P

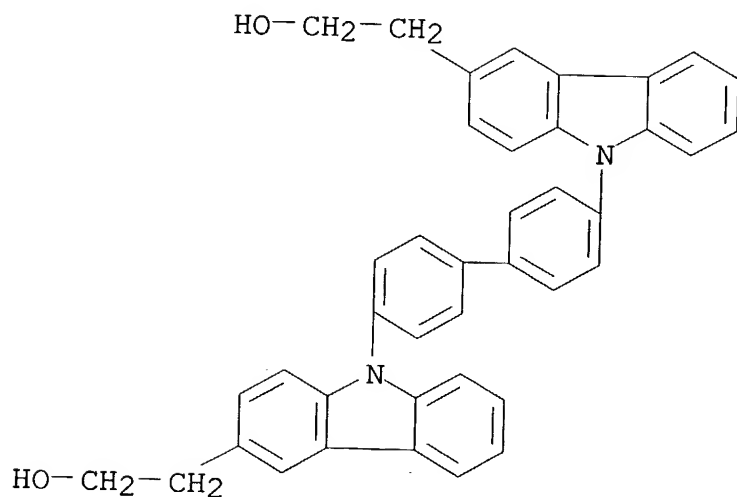
(org. electroluminescent device comprising charge transporting polyurethane)

RN 675620-94-7 ZCAPLUS

CN 9H-Carbazole-3-ethanol, 9,9'-[1,1'-biphenyl]-4,4'-diylbis-, polymer with 1,6-diisocyanatohexane (9CI) (CA INDEX NAME)

CM 1

CRN 675620-93-6
 CMF C40 H32 N2 O2



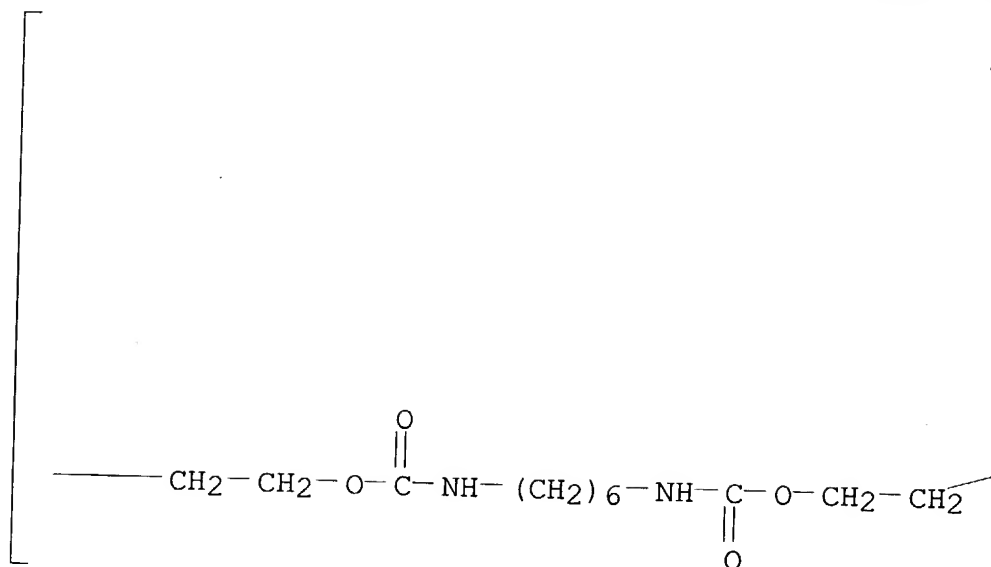
CM 2

CRN 822-06-0
 CMF C8 H12 N2 O2

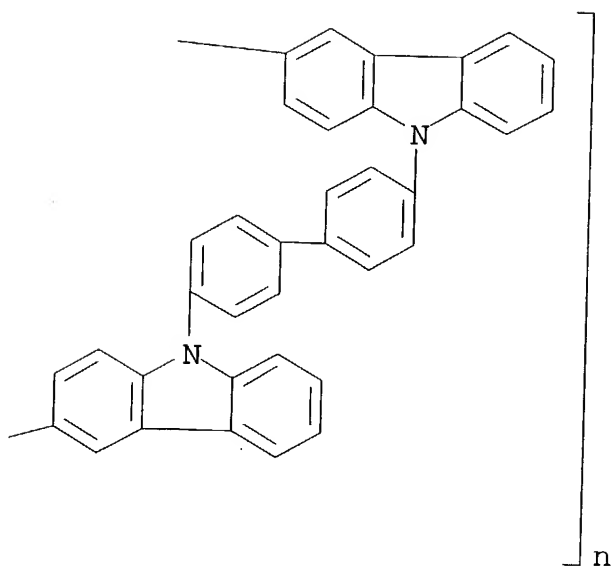
OCN-(CH₂)₆-NCO

RN 675620-95-8 ZCAPLUS
 CN Poly(9H-carbazole-3,9-diyl[1,1'-biphenyl]-4,4'-diyl-9H-carbazole-9,3-diyl-1,2-ethanediylloxycarbonylimino-1,6-hexanediyliminocarbonyloxy-1,2-ethanediyl) (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



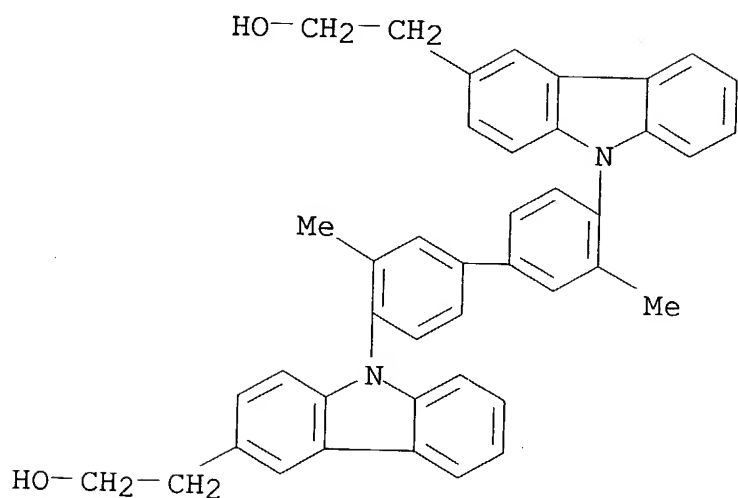
RN 675620-97-0 ZCAPLUS
 CN 9H-Carbazole-3-ethanol, 9,9'-(3,3'-dimethyl[1,1'-biphenyl])-4,4'-

diyl)bis-, polymer with 1,6-diisocyanatohexane (9CI) (CA INDEX NAME)

CM 1

CRN 675620-96-9

CMF C42 H36 N2 O2



CM 2

CRN 822-06-0

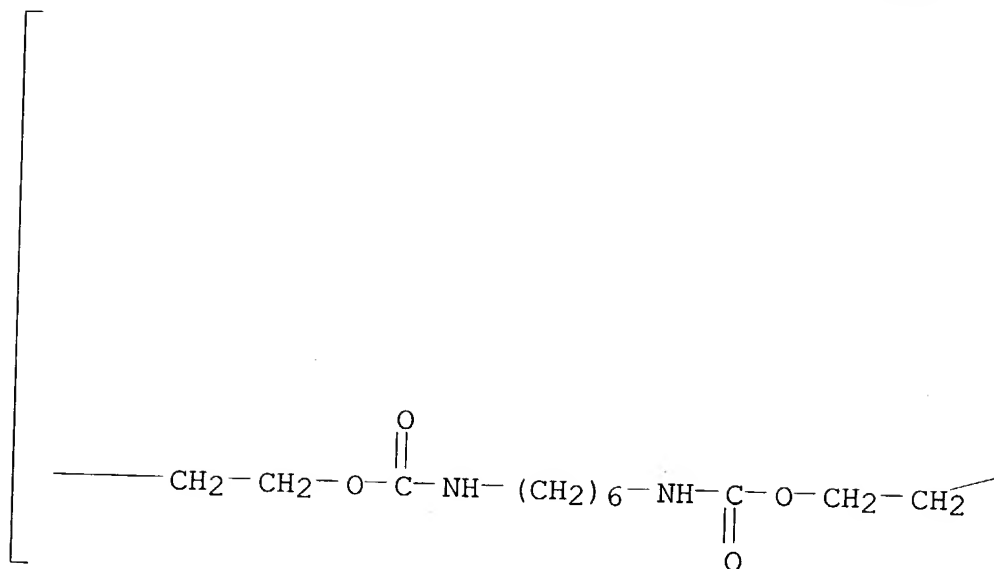
CMF C8 H12 N2 O2

OCN-(CH₂)₆-NCO

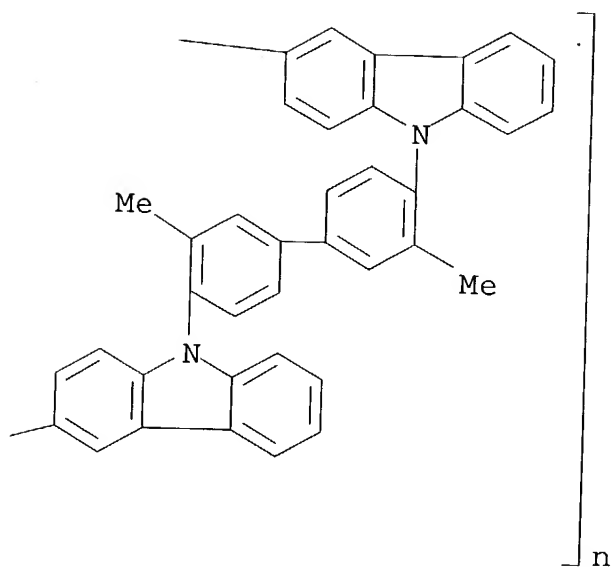
RN 675620-98-1 ZCAPLUS

CN Poly[9H-carbazole-3,9-diyl(3,3'-dimethyl[1,1'-biphenyl]-4,4'-diyl)-9H-carbazole-9,3-diyl-1,2-ethanediylloxycarbonylimino-1,6-hexanediyliminocarbonyloxy-1,2-ethanediyl] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



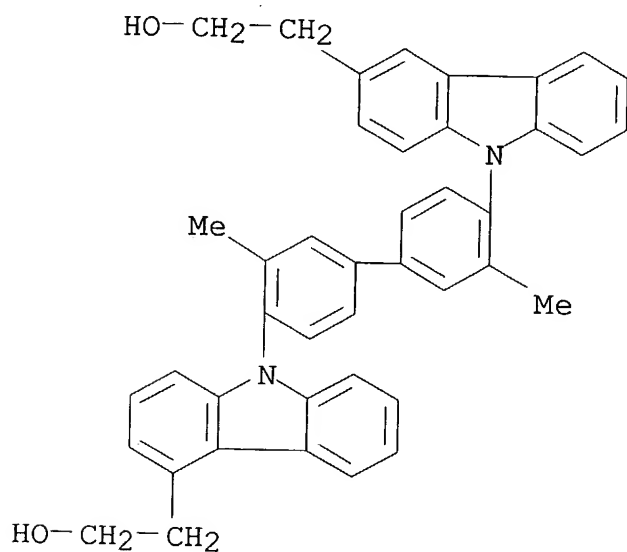
RN 675621-00-8 ZCAPLUS
 CN 9H-Carbazole-3-ethanol, 9-[4'-[4-(2-hydroxyethyl)-9H-carbazol-9-yl]-

3,3'-dimethyl[1,1'-biphenyl]-4-yl]-, polymer with
1,6-diisocyanatohexane (9CI) (CA INDEX NAME)

CM 1

CRN 675620-99-2

CMF C42 H36 N2 O2



CM 2

CRN 822-06-0

CMF C8 H12 N2 O2

OCN-(CH₂)₆-NCO

IT 675620-94-7P 675620-95-8P 675620-97-0P
675620-98-1P 675621-00-8P

(org. electroluminescent device comprising charge transporting
polyurethane)

L8 ANSWER 5 OF 19 ZCAPLUS COPYRIGHT 2004 ACS on STN
2004:219377 Document No. 140:278201 Organic electroluminescent device.
Ishii, Toru; Okuda, Daisuke; Seki, Mieko; Yoneyama, Hiroto; Hirose,
Eiichi; Ozaki, Tadayoshi; Agata, Takashi; Mashimo, Kiyokazu; Sato,
Katsuhiro (Fuji Xerox Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP
2004087396 A2 20040318, 47 pp. (Japanese). CODEN: JKXXAF.

APPLICATION: JP 2002-249235 20020828.

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The invention relates to an org. electroluminescent device comprising the charge transporting polyester contg. the partial structure represented by I and II [X = divalent arom. group; T = C1-6 divalent linear chain hydrocarbon and C2-10 divalent branched hydrocarbon groups; R1 = C1-10 hydrocarbon and arom. groups; R2 = H, C1-10 hydrocarbon, C1-4 alkoxy, cyano, etc.; and i, j and k = 0 or 1].

IT 672921-42-5 672921-44-7 672921-47-0
672921-48-1

(org. electroluminescent device comprising charge transporting polyester)

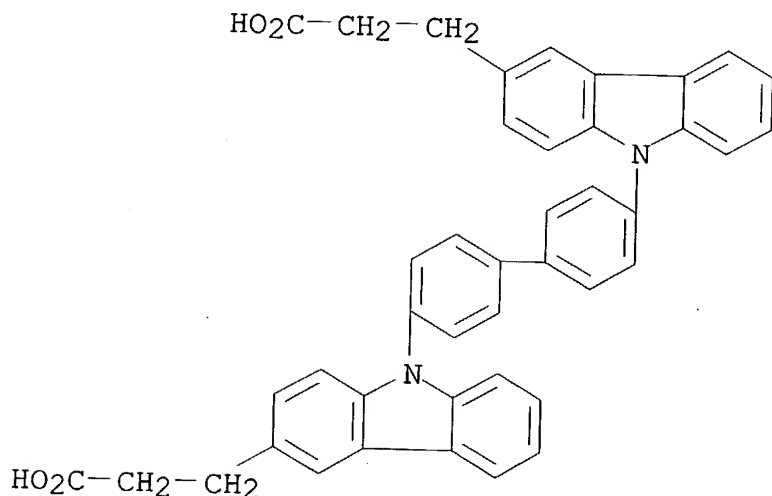
RN 672921-42-5 ZCAPLUS

CN 9H-Carbazole-3-propanoic acid, 9,9'-[1,1'-biphenyl]-4,4'-diylbis-, polymer with 1,2-ethanediol (9CI) (CA INDEX NAME)

CM 1

CRN 672921-41-4

CMF C42 H32 N2 O4



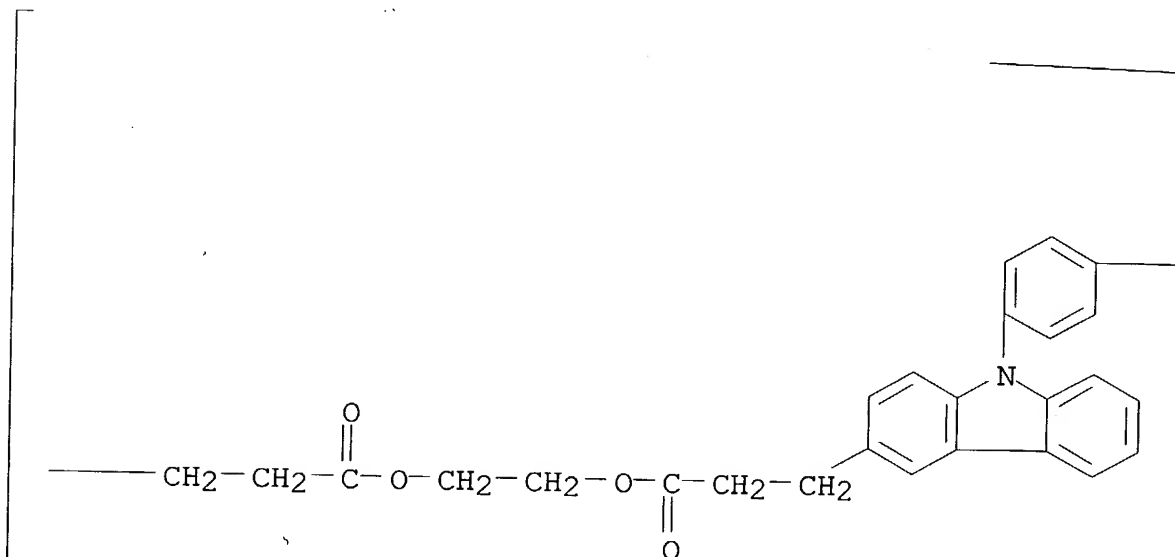
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CRN 107-21-1
CMF C2 H6 O2

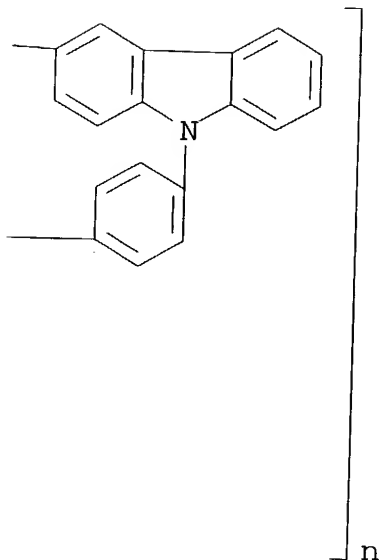
HO-CH₂-CH₂-OH

RN 672921-44-7 ZCAPLUS
CN Poly[9H-carbazole-3,9-diyl[1,1'-biphenyl]-4,4'-diyl-9H-carbazole-9,3-diyl(3-oxo-1,3-propanediyl)oxy-1,2-ethanediyl] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



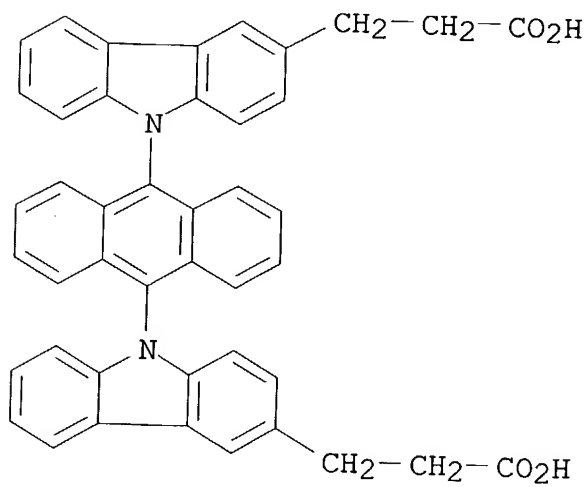
RN 672921-47-0 ZCAPLUS

CN 9H-Carbazole-3-propanoic acid, 9,9'-(9,10-anthracenediyl)bis-,
polymer with 1,2-ethanediol (9CI) (CA INDEX NAME)

CM 1

CRN 672921-46-9

CMF C44 H32 N2 O4



CM 2

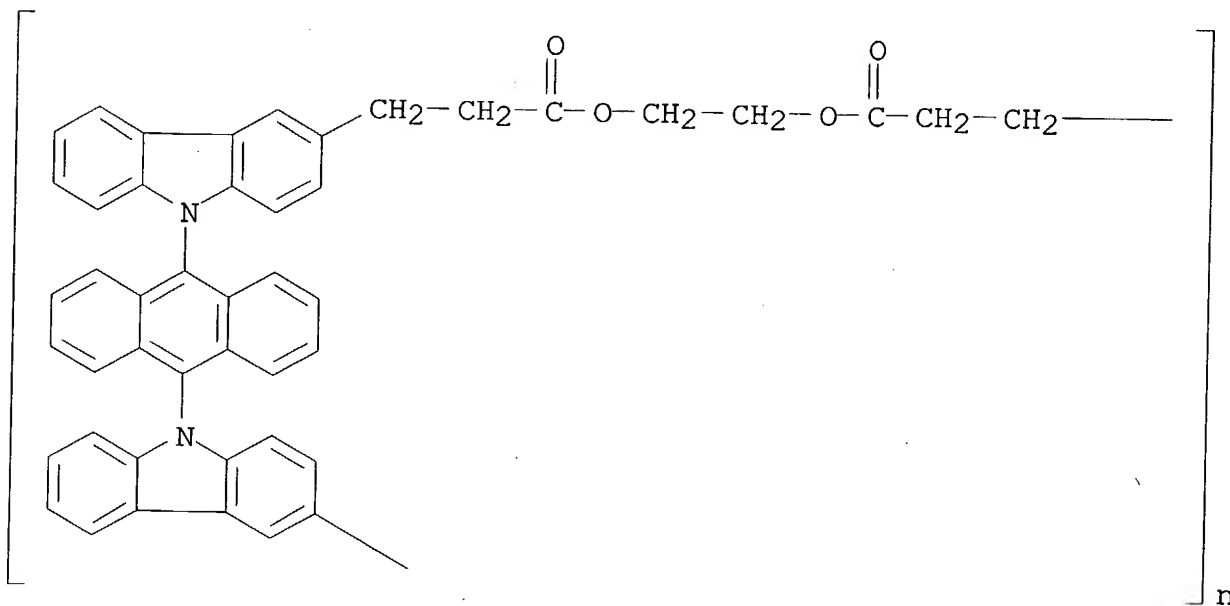
CRN 107-21-1

CMF C2 H6 O2

HO-CH₂-CH₂-OH

RN 672921-48-1 ZCAPLUS

CN Poly[9H-carbazole-3,9-diyl-9,10-anthracenediyl-9H-carbazole-9,3-diyl(3-oxo-1,3-propanediyl)oxy-1,2-ethanediyl] (9CI) (CA INDEX NAME)

IT 672921-42-5 672921-44-7 672921-47-0
672921-48-1

(org. electroluminescent device comprising charge transporting polyester)

L8 ANSWER 6 OF 19 ZCAPLUS COPYRIGHT 2004 ACS on STN
2004:57598 Document No. 140:101806 Carbazole compounds, their
polymers, and light-emitting elements using them with excellent blue
light emission. Watanabe, Saisuke; Okada, Hisashi (Fuji Photo Film
Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2004018787 A2
20040122, 27 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP
2002-179094 20020619.

AB The compds. are 3-R1-6-R2-9-R3-substituted carbazole [R1,2 = (un)substituted 9-carbazolyl; R3 = H2C:CRX; R = H, substituent; X = single bond, divalent org. group].

IT 644979-60-2P

(light-emitting layer; carbazole compds. for host polymers for org. electroluminescent devices with good blue light emission)

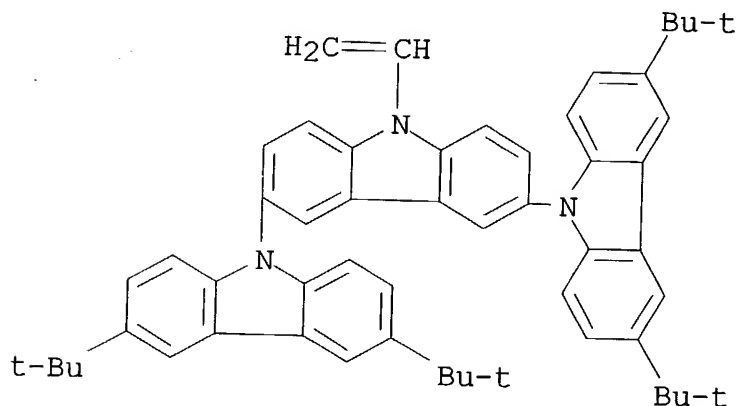
RN 644979-60-2 ZCAPLUS

CN 9,3':6',9''-Ter-9H-carbazole, 3,3'',6,6''-tetrakis(1,1-dimethylethyl)-9'-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 644979-55-5

CMF C54 H57 N3



IT 644979-60-2P

(light-emitting layer; carbazole compds. for host polymers for org. electroluminescent devices with good blue light emission)

L8 ANSWER 7 OF 19 ZCAPLUS COPYRIGHT 2004 ACS on STN

2003:737845 Document No. 139:267723 Polymerizable compositions and organic light-emitting devices containing them. Andrews, Mark David; Look, Kai; Mosley, Alan; Steudel, Annette Regine (CDT Oxford Limited, UK). PCT Int. Appl. WO 2003076548 A1 20030918, 42 pp.

DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2003-GB899

20030303. PRIORITY: GB 2002-5592 20020309; GB 2002-13902 20020618.

AB Compns. of a mixt. of a thiol material and a material that contains a reactive unsatd. C-C bond that can be polymd. to form a charge-transporting or luminescent film are described, as is an org. light-emitting diode (OLED) device comprising at least one such charge-transporting or emissive layer that was formed by polymg. a thiol material and an ene material. The process for forming such an OLED, including the deposition of a layer of material comprising the polymerizable compn., from soln., exposing said layer to actinic radiation through a mask, and then optionally developing said film to form a photopatterned film, is also disclosed.

IT 602299-91-2P 602299-93-4P

(polymerizable compns. for org. light-emitting devices)

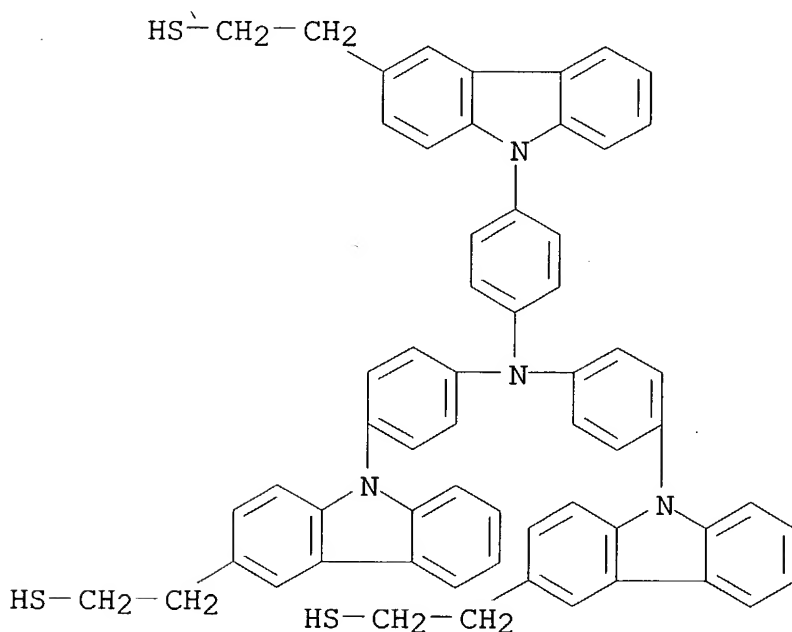
RN 602299-91-2 ZCAPLUS

CN 9H-Carbazole-3-ethanethiol, 9,9',9''-(nitrilotri-4,1-phenylene)tris-, polymer with 4-(3-ethenyl-9H-carbazol-9-yl)-N,N-bis[4-(3-ethenyl-9H-carbazol-9-yl)phenyl]benzenamine (9CI) (CA INDEX NAME)

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CRN 602299-90-1

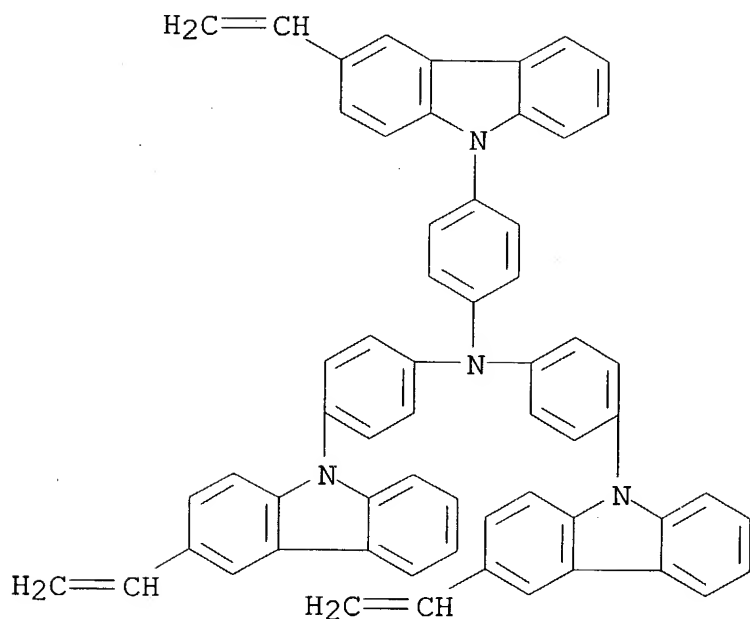
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CM 2

CRN 602299-88-7

CMF C60 H42 N4



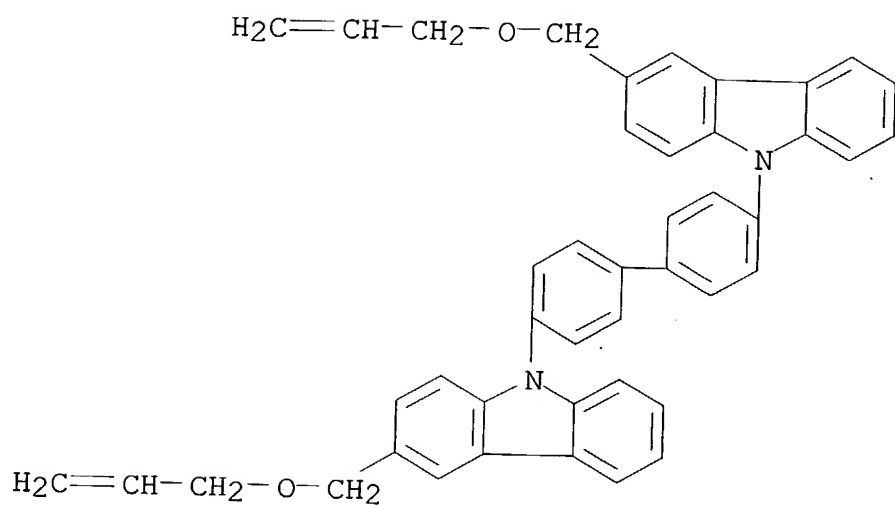
RN 602299-93-4 ZCAPLUS

CN 9H-Carbazole-3-ethanethiol, 9,9',9''-(nitrilotri-4,1-phenylene)tris-
, polymer with 9,9'-[1,1'-biphenyl]-4,4'-diylbis[3-[(2-
propenyloxy)methyl]-9H-carbazole] (9CI) (CA INDEX NAME)

CM 1

CRN 602299-92-3

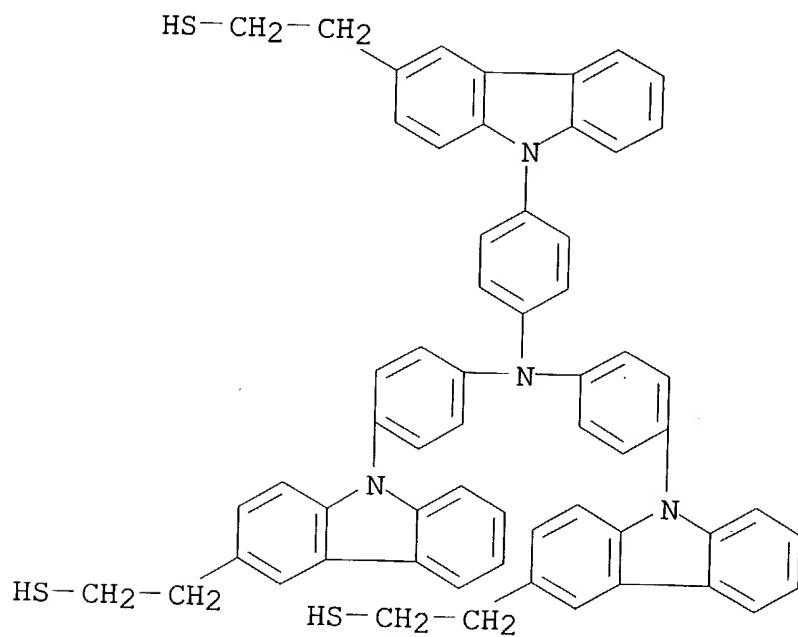
CMF C44 H36 N2 O2



CM 2

CRN 602299-90-1

CMF C60 H48 N4 S3



IT 602299-91-2P 602299-93-4P
(polymerizable compns. for org. light-emitting devices)

L8 ANSWER 8 OF 19 ZCAPLUS COPYRIGHT 2004 ACS on STN
2003:488878 Document No. 139:60192 Organic electroluminescent device using crosslinked charge-transporting polymers. Mashimo, Kiyokazu; Agata, Takashi; Sato, Katsuhiro; Ishii, Toru; Okuda, Daisuke; Ozaki, Tadayoshi; Seki, Mieko; Hirose, Eiichi; Yoneyama, Hiroto; Nukada, Katsumi; Iwasaki, Masahiro (Fuji Xerox Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2003178884 A2 20030627, 24 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-261715 20020906. PRIORITY: JP 2001-284563 20010919.

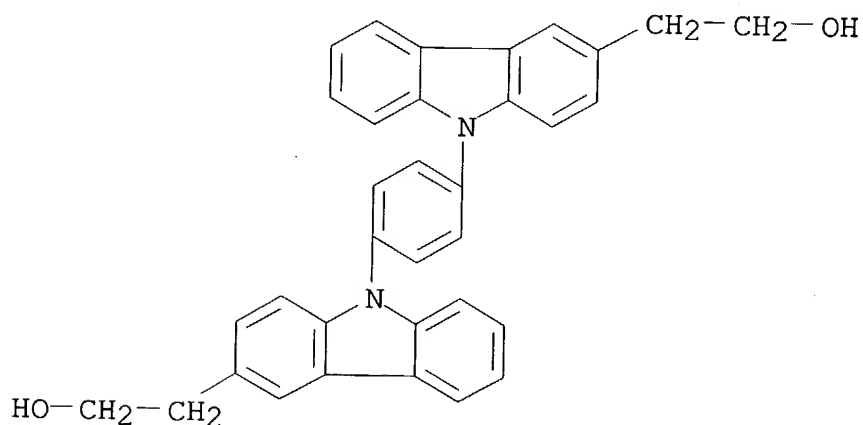
AB The device has .gtoreq.1 org. compd. layer sandwiched between a pair of (semi)transparent electrodes, wherein the layer contains charge-transporting polymers prepd. by three-dimensionally crosslinking OH-contg. charge-transporting substances with isocyanates having .gtoreq.3 functional groups. The device has high luminance, stability, and durability and can have large area.

IT 545442-66-8P
(large-area electroluminescent device using crosslinked charge-transporting polymers for high luminance, stability, and durability)

RN 545442-66-8 ZCAPLUS
CN Imidodicarbonic diamide, N,N',2-tris(6-isocyanatohexyl)-, polymer with 9,9'-(1,4-phenylene)bis[9H-carbazole-3-ethanol] (9CI) (CA INDEX NAME)

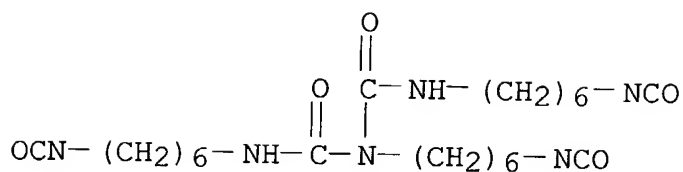
CM 1

CRN 545442-65-7
CMF C34 H28 N2 O2

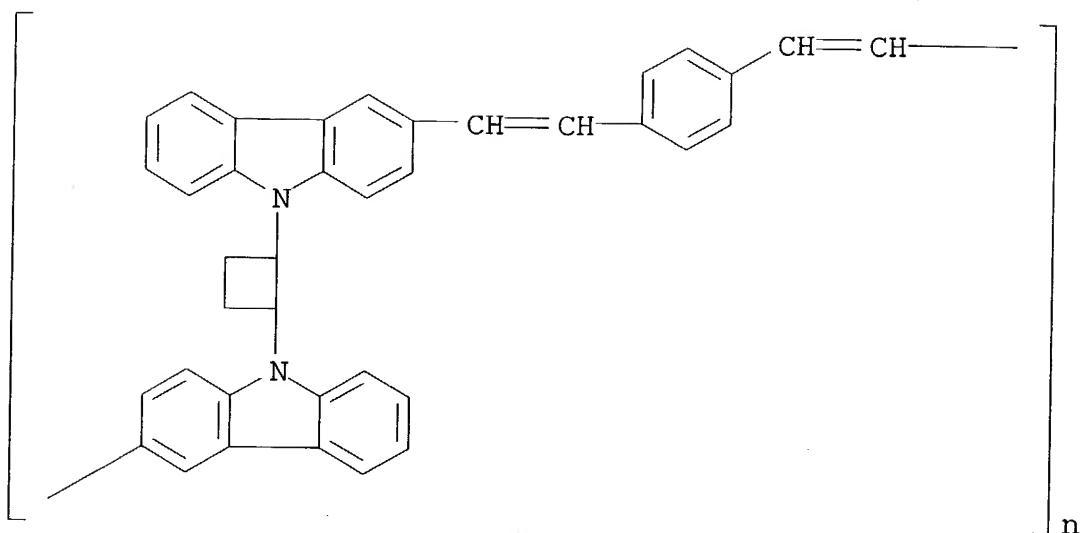


CM 2

CRN 4035-89-6
CMF C23 H38 N6 O5



- IT **545442-66-8P**
(large-area electroluminescent device using crosslinked charge-transporting polymers for high luminance, stability, and durability)
- L8 ANSWER 9 OF 19 ZCAPLUS COPYRIGHT 2004 ACS on STN
2002:963604 Document No. 138:238500 Novel hole-transporting carbazole main chain oligomer and its model glass-forming compound. Ostrauskaite, Jolita; Jankauskas, Vygintas; Grazulevicius, Juozas V. (Department of Organic Technology, Kaunas University of Technology, Kaunas, LT 3028, Lithuania). Polymer Bulletin (Berlin, Germany), 49(2-3), 95-101 (English) 2002. CODEN: POBUDR. ISSN: 0170-0839. Publisher: Springer-Verlag.
- AB The oligomer contg. 9-[2-(9H-carbazol-9-yl)cyclobutyl]-9H-carbazole moiety in the main chain and its model compd. were synthesized by Wittig reaction. Both compds. form glasses with glass transition temps. of 254.degree.C and 135.degree.C resp. The optical and photoelec. properties of the compds. were studied. The hole drift mobilities obsd. in the film of the oligomer by the time of flight technique were in the range of 2.cntdot.10-6 - 7.cntdot.10-6 cm2/(V.cntdot.s) at an applied elec. field ranging from 5.8.cntdot.104 to 2.7.cntdot.105 V/cm.
- IT **501652-03-5P**
(novel hole-transporting carbazole main chain oligomer and its model glass-forming compd.)
- RN 501652-03-5 ZCAPLUS
- CN Poly(9H-carbazole-3,9-diyl-1,2-cyclobutanediyl-9H-carbazole-9,3-diyl-1,2-ethenediyl-1,4-phenylene-1,2-ethenediyl) (9CI) (CA INDEX NAME)



IT 501652-03-5P

(novel hole-transporting carbazole main chain oligomer and its model glass-forming compd.)

L8 ANSWER 10 OF 19 ZCAPLUS COPYRIGHT 2004 ACS on STN

1994:232253 Document No. 120:232253 Microcapsule optical color recording sheet. Shiotani, Masaharu (Casio Computer Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 05085056 A2 19930406 Heisei, 18 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1991-248747 19910927.

AB The title sheet, capable of forming color images by color-changing microcapsules coated with a photoresponsive polymer gel, comprises a dispersion of microcapsules, having a capsule film which changes permeability by light irradiation, in a binder resin, wherein the capsule film consists of capsules of a porous substance and other capsules of a polymer having photoresponsive side chains which ionize by the light of specific wavelength and one of the reactants which react with each other to produce color is contained in the capsules, and the other in the resin.

IT 151485-63-1

(microcapsule color recording sheets contg.)

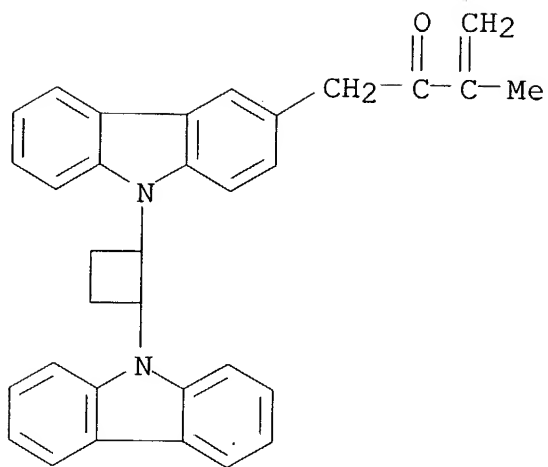
RN 151485-63-1 ZCAPLUS

CN 2-Propenamide, N,N'-methylenebis-, polymer with 1-[9-[2-(9H-carbazol-9-yl)cyclobutyl]-9H-carbazol-3-yl]-3-methyl-3-buten-2-one and 2-propenamide (9CI) (CA INDEX NAME)

CM 1

CRN 151485-62-0

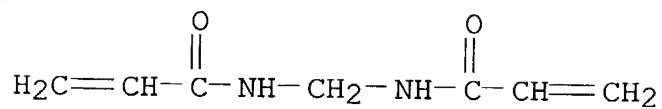
CMF C33 H28 N2 O



CM 2

CRN 110-26-9

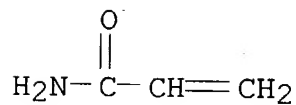
CMF C7 H10 N2 O2



CM 3

CRN 79-06-1

CMF C3 H5 N O



IT 151485-63-1

(microcapsule color recording sheets contg.)

L8 ANSWER 11 OF 19 ZCAPLUS COPYRIGHT 2004 ACS on STN
 1994:177613 Document No. 120:177613 Organic electroluminescent
 elements. Hosokawa, Chishio; Sakamoto, Shuji; Kusumoto, Tadashi

(Idemitsu Kosan Co., Ltd., Japan). PCT Int. Appl. WO 9306189 A1 19930401, 118 pp. DESIGNATED STATES: W: US; RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, SE. (Japanese). CODEN: PIXXD2. APPLICATION: WO 1992-JP1180 19920916. PRIORITY: JP 1991-238111 19910918; JP 1992-50865 19920309.

AB The element comprises a phosphor and/or a hole-transporter material consisting of a polycarbonate having a styrylamine or a diarylvinylenearylene structure as the repeating unit. The element has a high luminance and a long-life stability.

IT **152849-12-2P**

(prep. and use of, as electroluminescent phosphors and/or hole transporters)

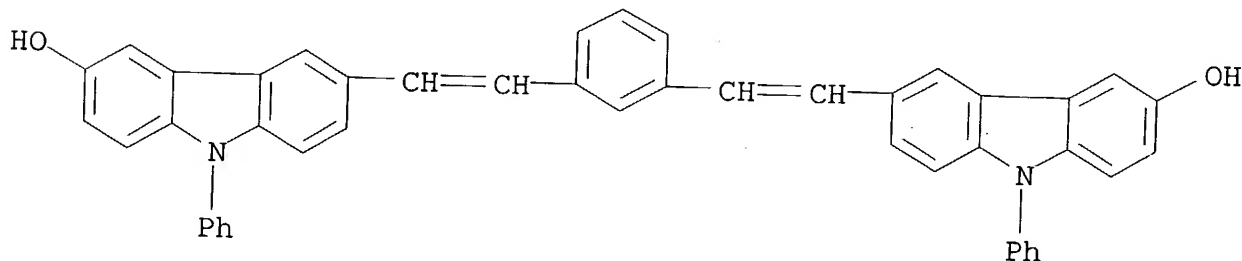
RN 152849-12-2 ZCAPLUS

CN Carbonic acid, polymer with 4,4'-(1-methylethylidene)bis[2-methylphenol] and 6,6'-(1,3-phenylenedi-2,1-ethenediyl)bis[9-phenyl-9H-carbazol-3-ol] (9CI) (CA INDEX NAME)

CM 1

CRN 152849-11-1

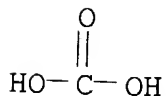
CMF C46 H32 N2 O2



CM 2

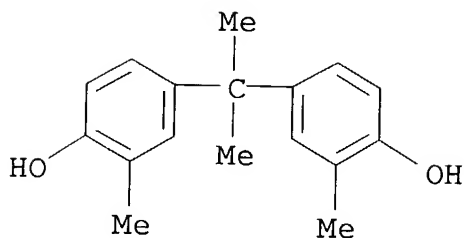
CRN 463-79-6

CMF C H2 O3



CM 3

CRN 79-97-0
CMF C17 H20 O2



IT 152849-12-2P

(prep. and use of, as electroluminescent phosphors and/or hole transporters)

L8 ANSWER 12 OF 19 ZCAPLUS COPYRIGHT 2004 ACS on STN
1993:672937 Document No. 119:272937 Microcapsules with light-sensitive membranes for controlling material penetration. Shiotani, Masaharu (Casio Computer Co Ltd, Japan). Jpn. Kokai Tokkyo Koho JP 05084437 A2 19930406 Heisei, 17 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1991-248746 19910927.

AB The title microcapsules comprise an inner porous membrane wall and an outer polymer gel membrane wall having branch chains able to release and ionize by exposing to radiation and changing permeability of the materials on the both sides of the wall to control the reaction speed between the materials by controlling radiation amt. The polymer gel membrane is prepd. from derivs. of triphenylmethane, carbazole, pyrene, etc.

IT 151485-63-1

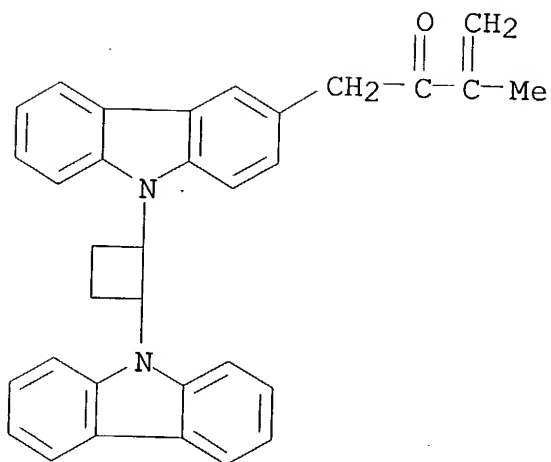
(membrane with permeability controllable by radiation amt., for reaction speed controllable microcapsules)

RN 151485-63-1 ZCAPLUS

CN 2-Propenamide, N,N'-methylenebis-, polymer with 1-[9-[2-(9H-carbazol-9-yl)cyclobutyl]-9H-carbazol-3-yl]-3-methyl-3-buten-2-one and 2-propenamide (9CI) (CA INDEX NAME)

CM 1

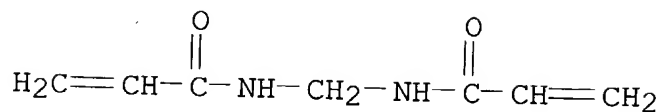
CRN 151485-62-0
CMF C33 H28 N2 O



CM 2

CRN 110-26-9

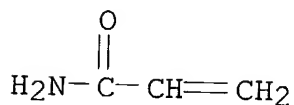
CMF C7 H10 N2 O2



CM 3

CRN 79-06-1

CMF C3 H5 N O



IT 151485-63-1

(membrane with permeability controllable by radiation amt., for
reaction speed controllable microcapsules)

L8 ANSWER 13 OF 19 ZCAPLUS COPYRIGHT 2004 ACS on STN
1989:615228 Document No. 111:215228 Improved hole drift mobility in
excimer-free polymers containing a dimeric carbazole unit.

Sasakawa, Tomoyoshi; Ikeda, Tomiki; Tazuke, Shigeo (Res. Lab. Resour. Util., Tokyo Inst. Technol., Yokohama, 227, Japan). Macromolecules, 22(11), 4253-9 (English) 1989. CODEN: MAMOBX. ISSN: 0024-9297.

AB The hole drift mobility of vinyl polymers contg. 1,2-trans-bis(9H-carbazol-9-yl)cyclobutane (I) pendant groups was >10 times that of poly(9-vinylcarbazole) or poly(9-ethyl-3-vinylcarbazole). Comparison of their photophys. properties indicated that the high hole drift mobility of I-contg. polymers was due to the redn. of the concn. of trapping sites (excimer-forming sites). This was conformed by the temp. and elec. field dependence of the mobility.

IT 80218-51-5 80218-52-6

(hole drift mobility in, photophys. properties in relation to)

RN 80218-51-5 ZCAPLUS

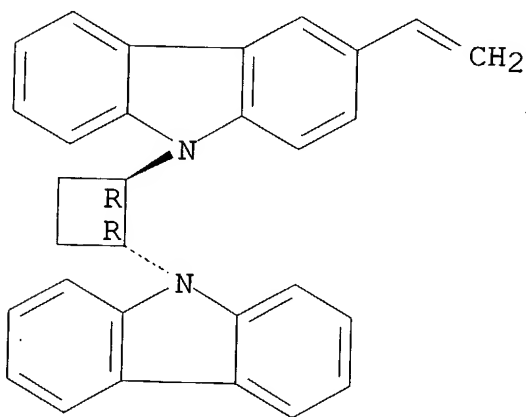
CN 9H-Carbazole, 9-[2-(9H-carbazol-9-yl)cyclobutyl]-3-ethenyl-, trans-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 80217-96-5

CMF C30 H24 N2

Relative stereochemistry.



RN 80218-52-6 ZCAPLUS

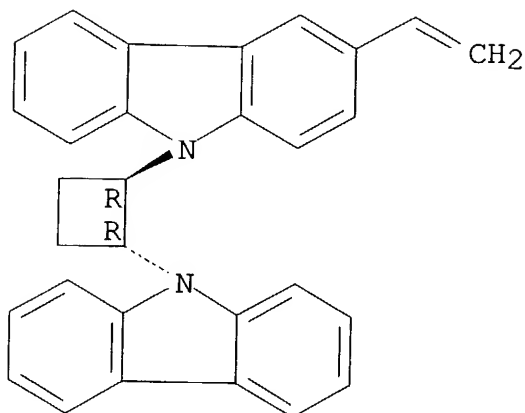
CN 9H-Carbazole, 9-[2-(9H-carbazol-9-yl)cyclobutyl]-3-ethenyl-, trans-, polymer with 3-ethenyl-9-ethyl-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 80217-96-5

CMF C30 H24 N2

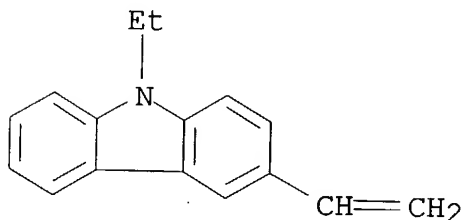
Relative stereochemistry.



CM 2

CRN 1486-07-3

CMF C16 H15 N



IT 80218-51-5 80218-52-6

(hole drift mobility in, photophys. properties in relation to)

L8 ANSWER 14 OF 19 ZCAPLUS COPYRIGHT 2004 ACS on STN
1987:423820 Document No. 107:23820 Synthesis of new polyamides having in-chain trans-1,2-dicarbazolylcyclobutane units and their spectroscopic properties. Subramaniam, Prema; Sasakawa, Tomoyoshi; Ikeda, Tomiki; Tazuke, Shigeo (Res. Lab. Resour. Util., Tokyo Inst. Technol., Yokohama, 227, Japan). Makromolekulare Chemie, 188(5), 1147-55 (English) 1987. CODEN: MACEAK. ISSN: 0025-116X.

AB The title polyamides were prep'd. by polymn. of 9,9'-(1,2-trans-cyclobutylene)-di-3-carbazolepropionic acid with arom. diamines. The fluorescence quantum yields of these polyamides were rather low in comparison with those of trans-1,2-dicarbazolylcyclobutane (DCZB) alone and vinyl polymers contg. the DCZB units. The fluorescence decay of the polyamides could be analyzed by a triple exponent decay

with life times of 1-2 ns (.apprx.20%), 5-6 ns (.apprx.35%), and 12-14 ns (.apprx.45%).

IT 108916-57-0P 108916-58-1P 108916-59-2P
108916-60-5P 108916-61-6P 108916-65-0P
108916-66-1P 108916-67-2P 108916-68-3P
108935-67-7P

(prepn. and spectroscopic properties of)

RN 108916-57-0 ZCAPLUS

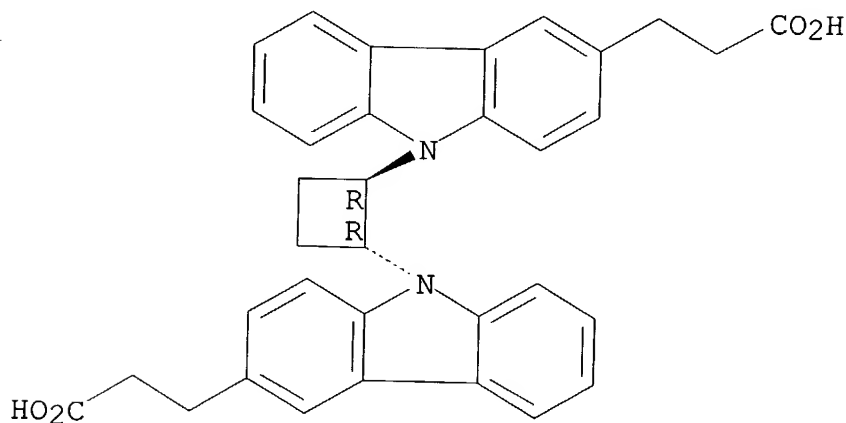
CN 9H-Carbazole-3-propanoic acid, 9,9'-(1,2-cyclobutanediyl)bis-,
trans-, polymer with 9-ethyl-9H-carbazole-3,6-diamine (9CI) (CA
INDEX NAME)

CM 1

CRN 108916-56-9

CMF C34 H30 N2 O4

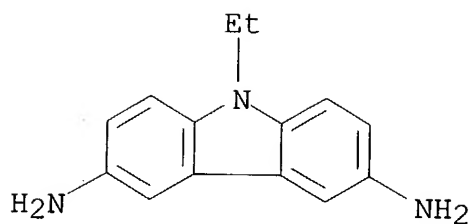
Relative stereochemistry.



CM 2

CRN 50717-02-7

CMF C14 H15 N3



RN 108916-58-1 ZCAPLUS

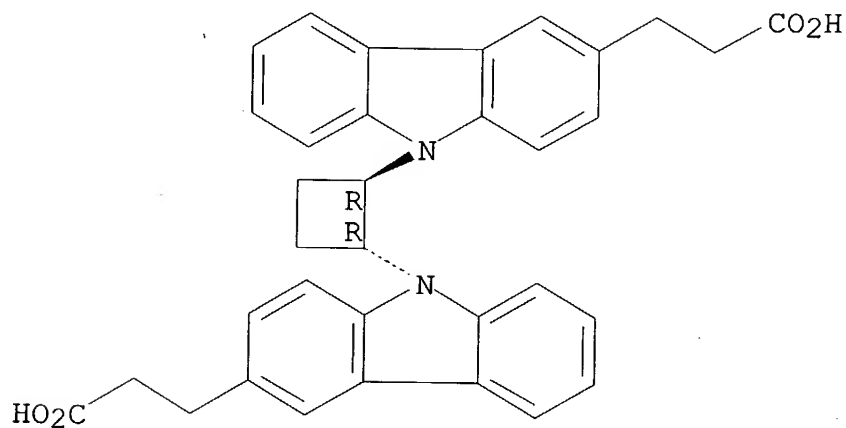
CN 9H-Carbazole-3-propanoic acid, 9,9'-(1,2-cyclobutanediyl)bis-, trans-, polymer with 4,4'-methylenebis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 108916-56-9

CMF C34 H30 N2 O4

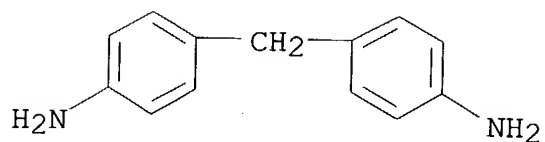
Relative stereochemistry.



CM 2

CRN 101-77-9

CMF C13 H14 N2



RN 108916-59-2 ZCAPLUS

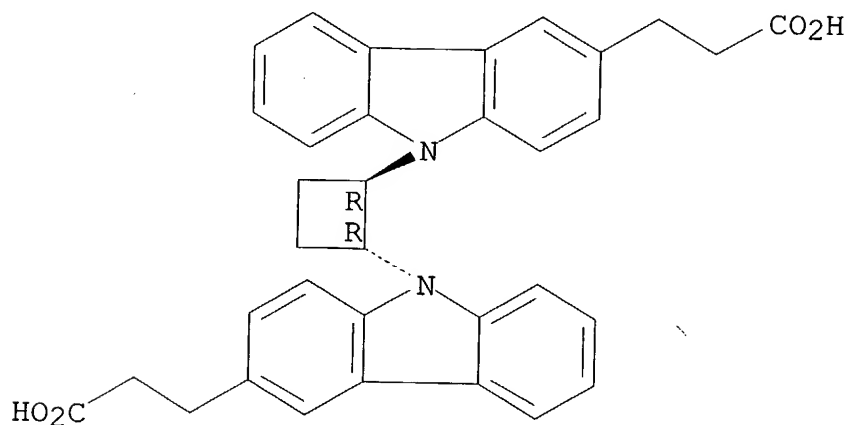
CN 9H-Carbazole-3-propanoic acid, 9,9'-(1,2-cyclobutanediyl)bis-,
trans-, polymer with 4,4'-oxybis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 108916-56-9

CMF C34 H30 N2 O4

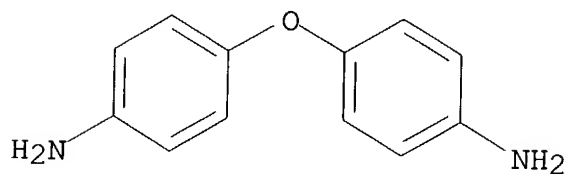
Relative stereochemistry.



CM 2

CRN 101-80-4

CMF C12 H12 N2 O



RN 108916-60-5 ZCAPLUS

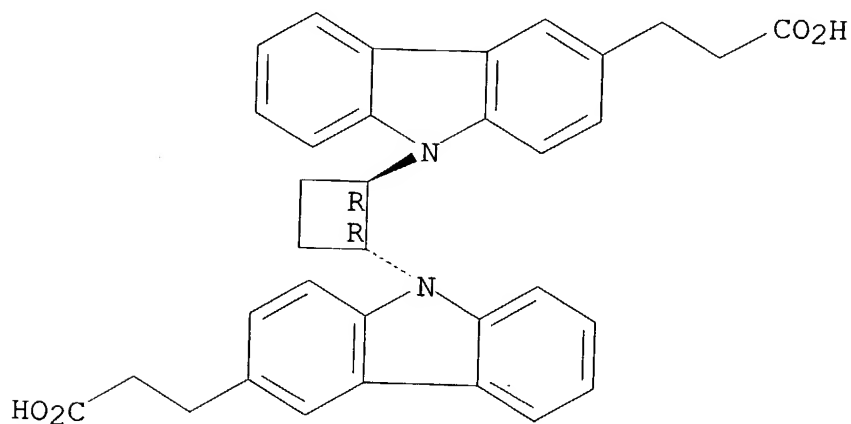
CN 9H-Carbazole-3-propanoic acid, 9,9'-(1,2-cyclobutanediyl)bis-,
trans-, polymer with [1,1'-biphenyl]-4,4'-diamine (9CI) (CA INDEX
NAME)

CM 1

CRN 108916-56-9

CMF C34 H30 N2 O4

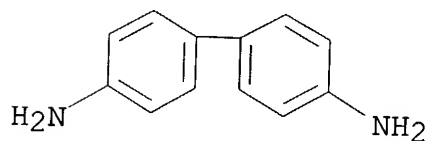
Relative stereochemistry.



CM 2

CRN 92-87-5

CMF C12 H12 N2



RN 108916-61-6 ZCAPLUS

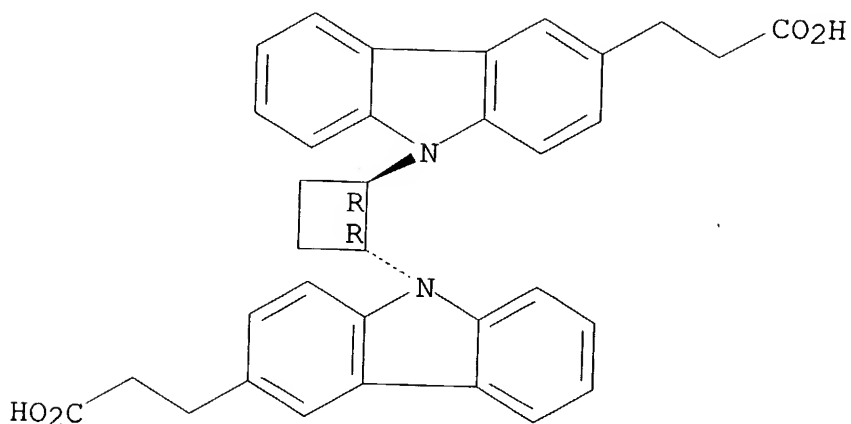
CN 9H-Carbazole-3-propanoic acid, 9,9'-(1,2-cyclobutanediyl)bis-,
trans-, polymer with 1,4-benzenediamine (9CI) (CA INDEX NAME)

CM 1

CRN 108916-56-9

CMF C34 H30 N2 O4

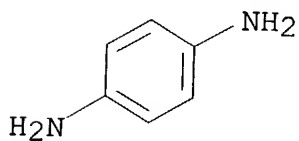
Relative stereochemistry.



CM 2

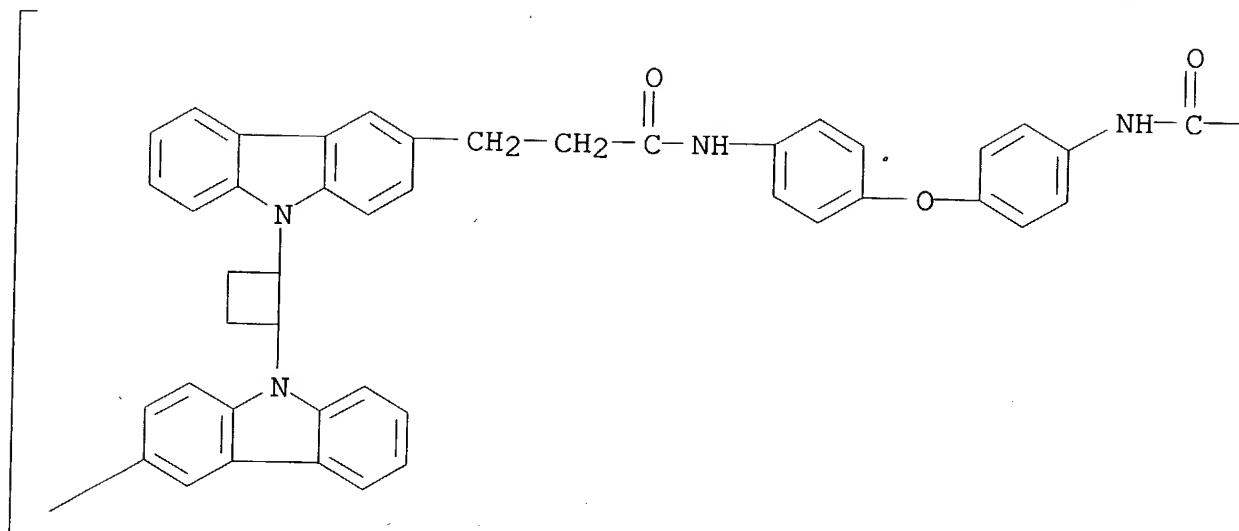
CRN 106-50-3

CMF C6 H8 N2

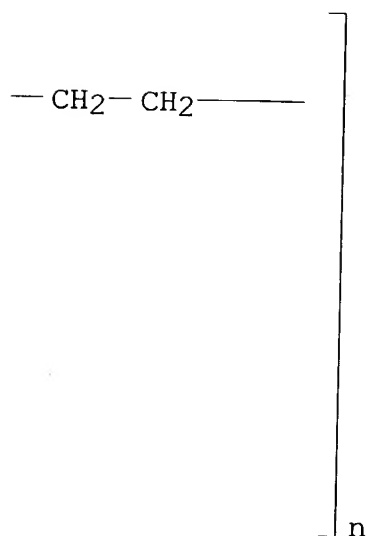


RN 108916-65-0 ZCAPLUS
CN Poly[9H-carbazole-3,9-diyl-1,2-cyclobutanediyl-9H-carbazole-9,3-diyl(3-oxo-1,3-propanediyl)imino-1,4-phenyleneoxy-1,4-phenyleneimino(1-oxo-1,3-propanediyl)], trans- (9CI) (CA INDEX NAME)

PAGE 1-A



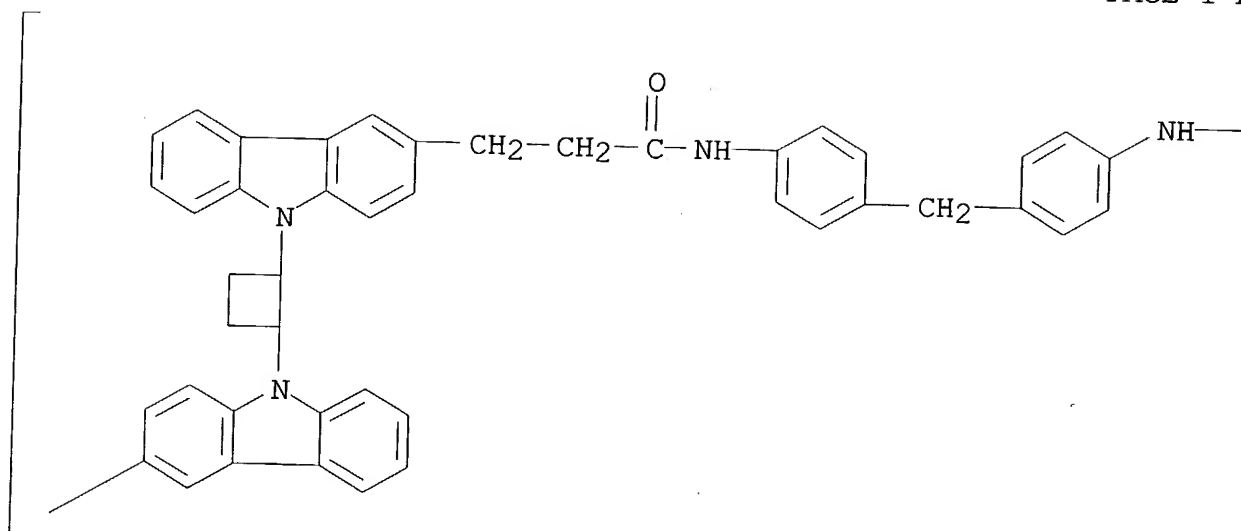
PAGE 1-B



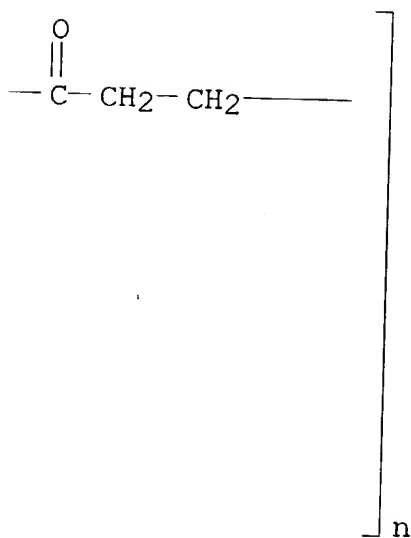
RN 108916-66-1 ZCAPLUS
 CN Poly[9H-carbazole-3,9-diyl-1,2-cyclobutanediyl-9H-carbazole-9,3-diyl(3-oxo-1,3-propanediyl)imino-1,4-phenylenemethylene-1,4-phenyleneimino(1-oxo-1,3-propanediyl)], trans- (9CI) (CA INDEX

NAME)

PAGE 1-A



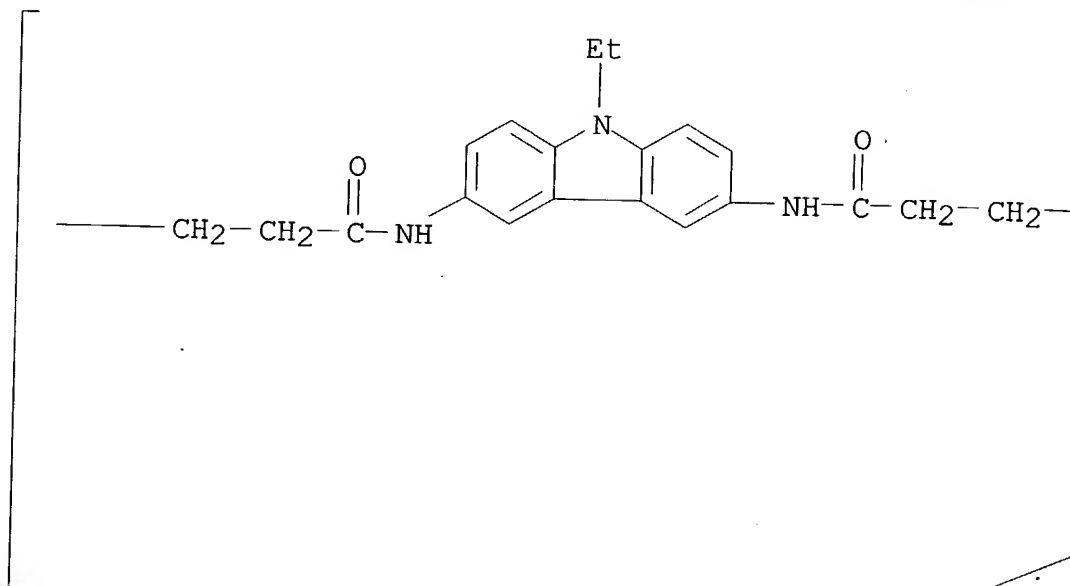
PAGE 1-B



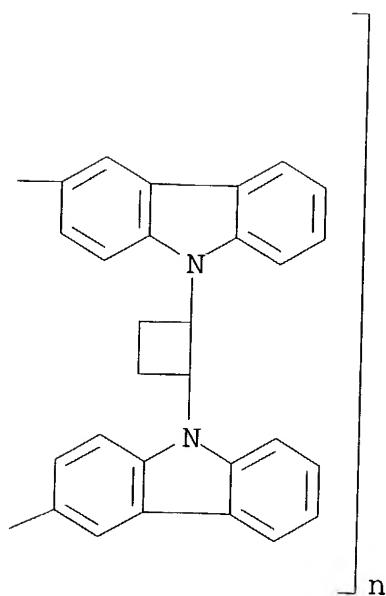
RN 108916-67-2 ZCAPLUS
 CN Poly[9H-carbazole-3,9-diyl-1,2-cyclobutanediyl-9H-carbazole-9,3-

diyl (3-oxo-1,3-propanediyl) imino (9-ethyl-9H-carbazole-3,6-diyl) imino (1-oxo-1,3-propanediyl)], trans- (9CI) (CA INDEX NAME)

PAGE 1-A

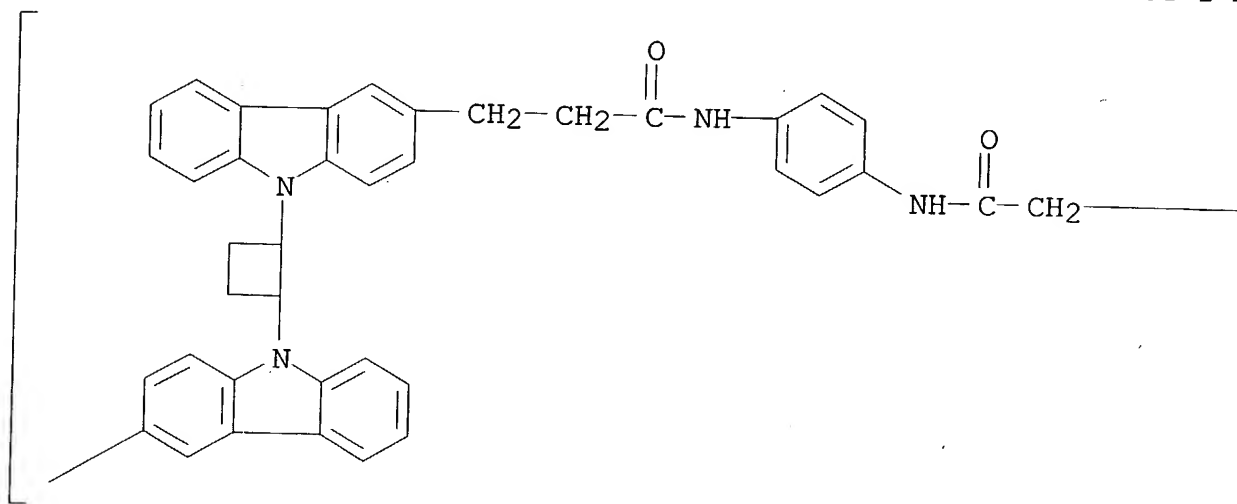


PAGE 1-B

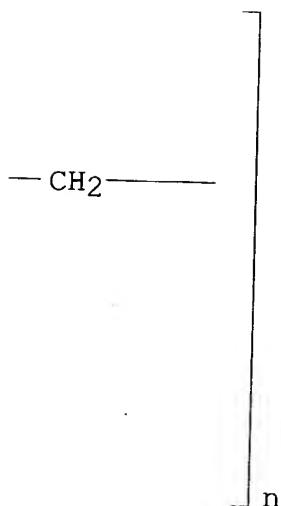


RN 108916-68-3 ZCAPLUS
CN Poly[9H-carbazole-3,9-diyl-1,2-cyclobutanediyl-9H-carbazole-9,3-diyl(3-oxo-1,3-propanediyl)imino-1,4-phenyleneimino(1-oxo-1,3-propanediyl)], trans- (9CI) (CA INDEX NAME)

PAGE 1-A



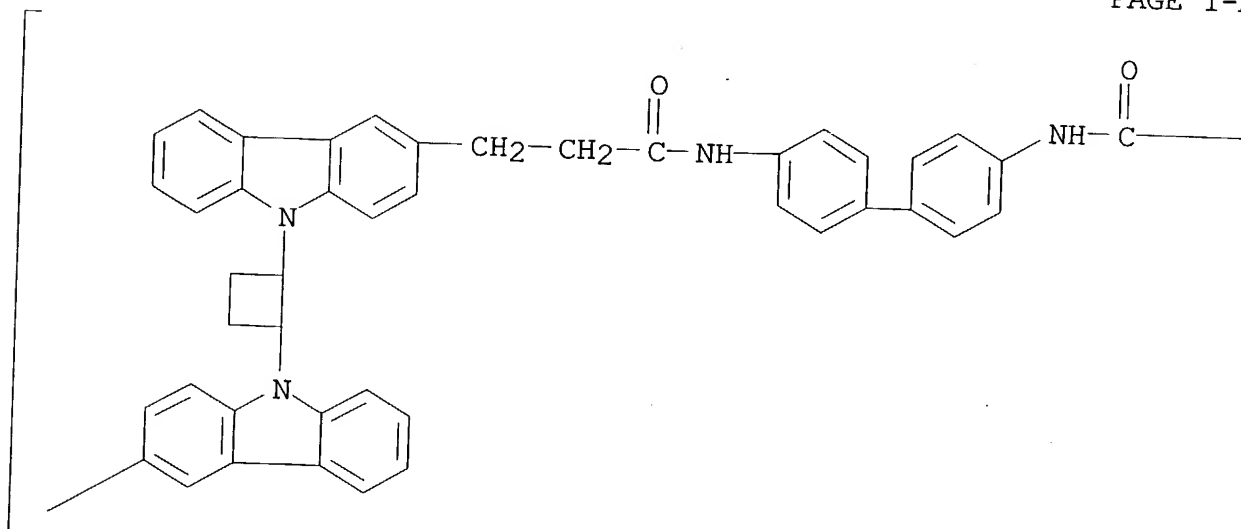
PAGE 1-B



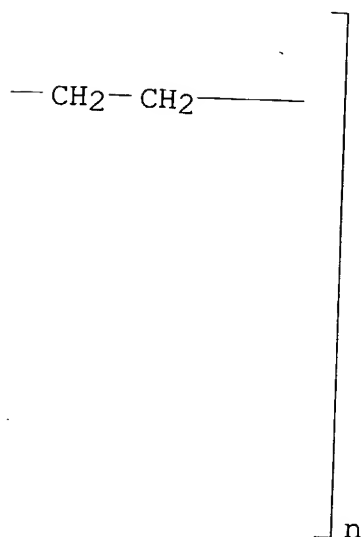
RN 108935-67-7 ZCAPLUS

CN Poly[9H-carbazole-3,9-diyl-1,2-cyclobutanediyl-9H-carbazole-9,3-diyl (3-oxo-1,3-propanediyl)imino[1,1'-biphenyl]-4,4'-diyliminocarbonyl-1,2-ethanediyl], trans- (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IT 108916-57-0P 108916-58-1P 108916-59-2P
108916-60-5P 108916-61-6P 108916-65-0P
108916-66-1P 108916-67-2P 108916-68-3P
108935-67-7P

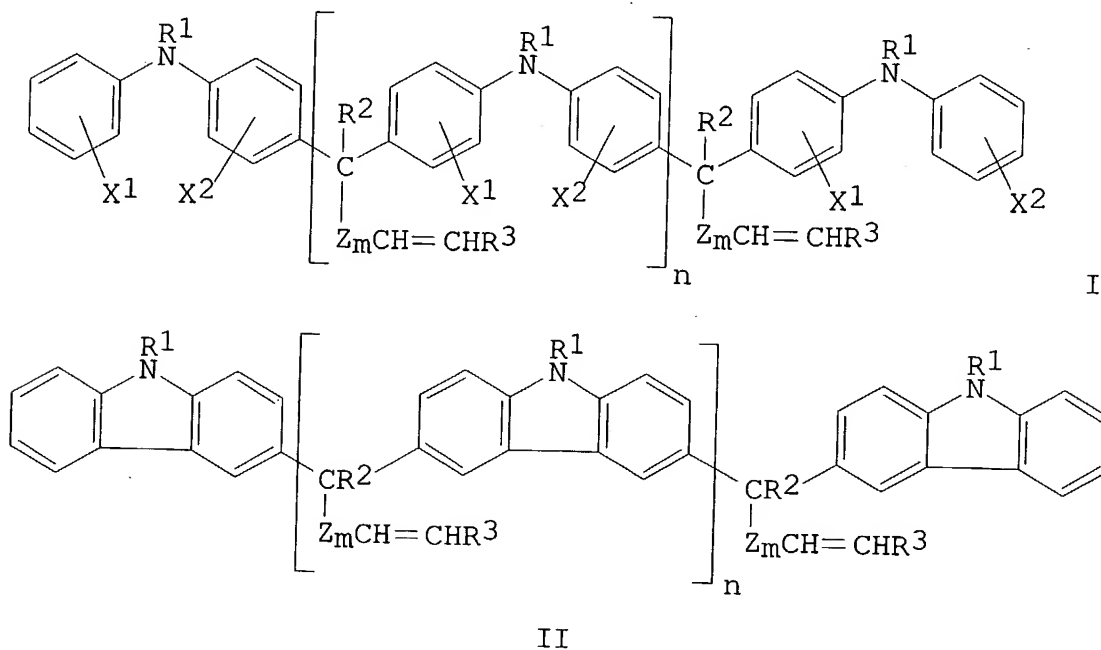
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L8 ANSWER 15 OF 19 ZCAPLUS COPYRIGHT 2004 ACS on STN
1987:154276 Document No. 106:154276 Electrophotographic photoreceptor.
Matsumoto, Masakazu (Canon K. K., Japan). Jpn. Kokai Tokkyo Koho JP
61173255 A2 19860804 Showa, 18 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1985-13425 19850129.

GI



AB The claimed electrophotog. photoreceptor contains I or II (R1 = H, alkyl, aryl, aralkyl; R2 = H, alkyl; X1, X2 = H, alkyl, aralkyl, alkoxy, halo; R3 = aryl heterocycllyl; Z = arylene, heterocycllylene; m = 0, 1; n .gtoreq. 1) in the photoconductor layer. The photoreceptor exhibits excellent sensitivity and durability. The compds. I and II are esp. useful as e charge carrier-transporting agents.

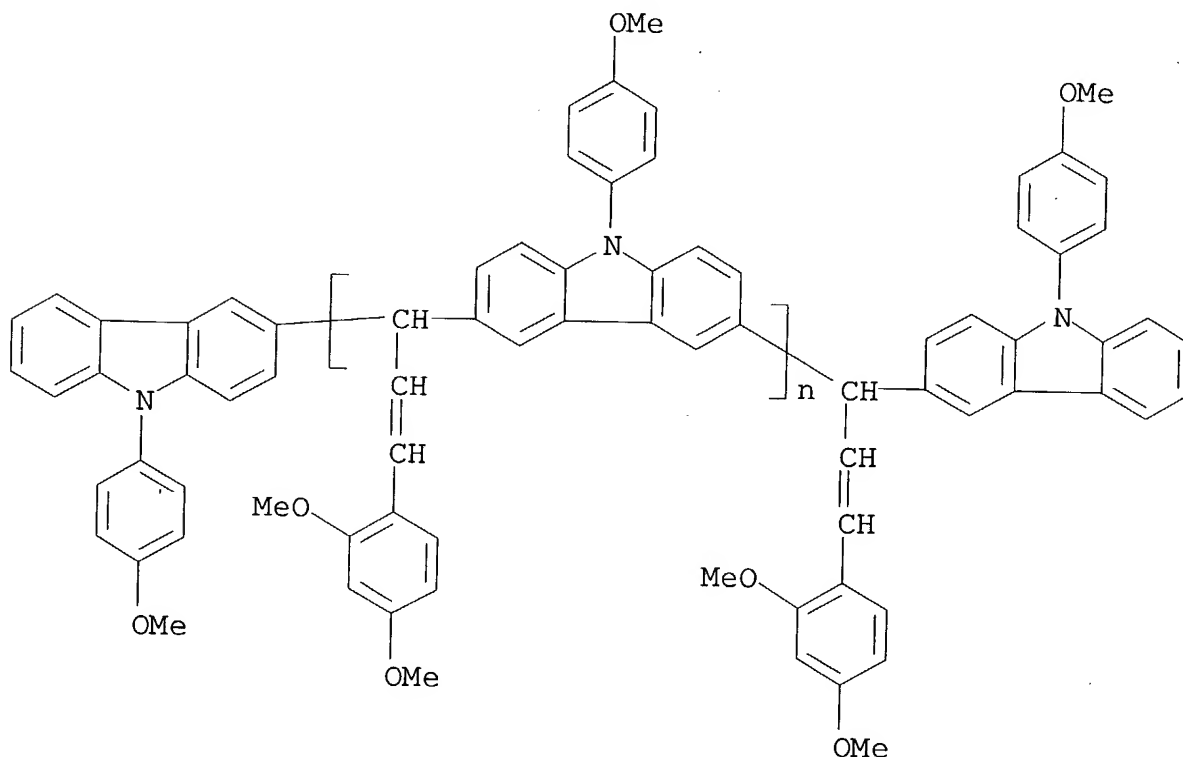
IT 107467-60-7 107479-43-6

(electrophotog. charge carrier-transporting agent)
467-60-7 3C4PLHS

RN 107467-60-7 ZCAPLUS

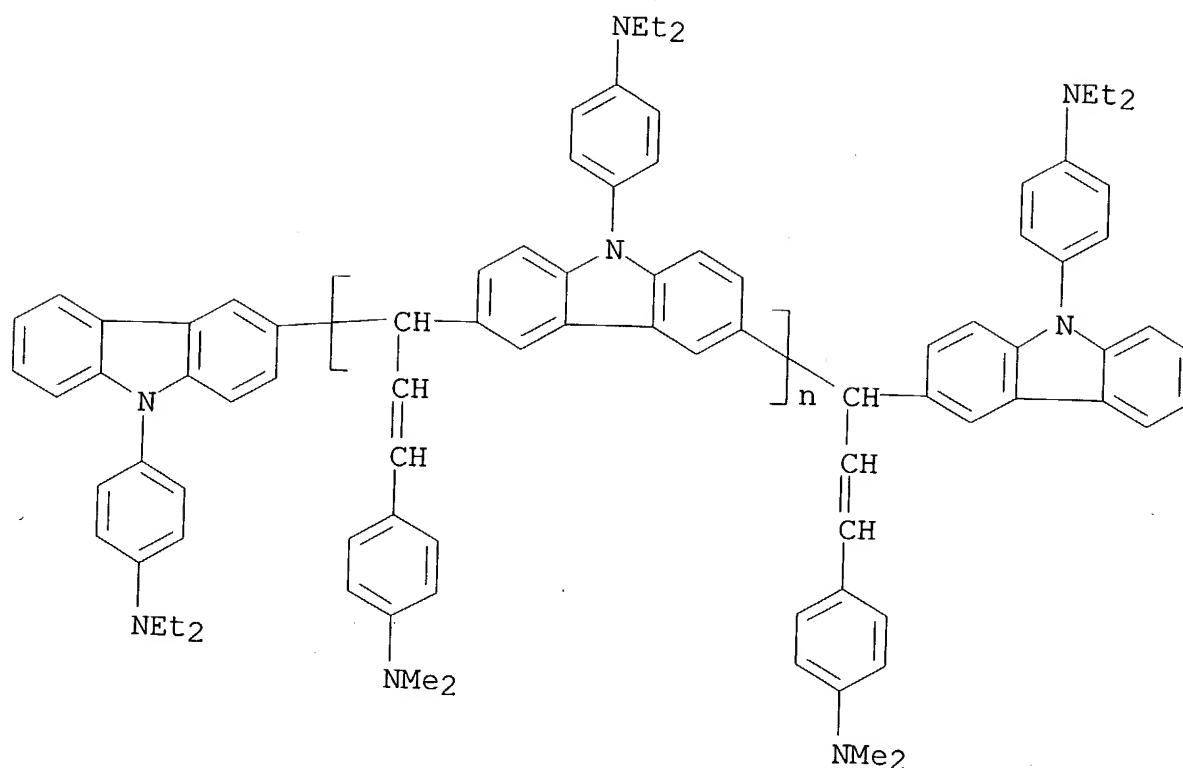
CN Poly[[9-(4-methoxyphenyl)-9H-carbazole-3,6-diyl][3-(2,4-

dimethoxyphenyl)-2-propenylidene]], .alpha.-[3-(2,4-dimethoxyphenyl)-1-[9-(4-methoxyphenyl)-9H-carbazol-3-yl]-2-propenyl]-.omega.-[9-(4-methoxyphenyl)-9H-carbazol-3-yl]- (9CI) (CA INDEX NAME)



RN 107479-43-6 ZCAPLUS

CN Poly[[9-[4-(diethylamino)phenyl]-9H-carbazole-3,6-diyl][3-[4-(dimethylamino)phenyl]-2-propenylidene]], .alpha.-[[9-[4-(diethylamino)phenyl]-9H-carbazol-3-yl]-3-[4-(dimethylamino)phenyl]-2-propenyl]-.omega.-[9-[4-(diethylamino)phenyl]-9H-carbazol-3-yl]- (9CI) (CA INDEX NAME)



IT 107467-60-7 107479-43-6
(electrophotog. charge carrier-transporting agent)

L8 ANSWER 16 OF 19 ZCAPLUS COPYRIGHT 2004 ACS on STN
1985:586798 Document No. 103:186798 Xerographic study of neat polymers containing trans-1,2-bis(9-carbazolyl)cyclobutane units. Tazuke, Shigeo; Inoue, Takashi; Kokado, Hiroshi (Res. Lab. Resour. Util., Tokyo Inst. Technol., Yokohama, 227, Japan). Polymer Photochemistry, 6(5), 385-92 (English) 1985. CODEN: POPHDO. ISSN: 0144-2880.

AB Photocond. of the following unsensitized polymers was evaluated by xerog. methods and discussed with ref. to the polymer structures: poly(9-vinylcarbazole) (I), poly(9-ethyl-3-vinylcarbazole) (II), poly[trans-1-(3-vinyl-9-carbazolyl)-2-(9-carbazolyl)-cyclobutane] (III), copolymers of II and III [content of II: 91% (IV), 34% (V)] and poly[trans-1-(3-acryloyloxymethyl-9-carbazolyl)-2-(9-carbazolyl)cyclobutane] (VI). The initial charge decay rate under photoirradn. and the half-lifetime were in the order $V > I > III > II > VI > IV$ and $V < III < VI < I < II < IV$, resp. The excimer intensity increased in the order VI, III < V < IV < II << I. The biscarbazolylcyclobutane unit scarcely formed excimer, and the local chromophore concn. was high. These factors were favorable for both

carrier generation and carrier transport. Other factors necessary for a good photoconductor are also discussed.

IT 80218-51-5 80218-52-6

(photocond. of unsensitized, for electrophotog.)

RN 80218-51-5 ZCAPLUS

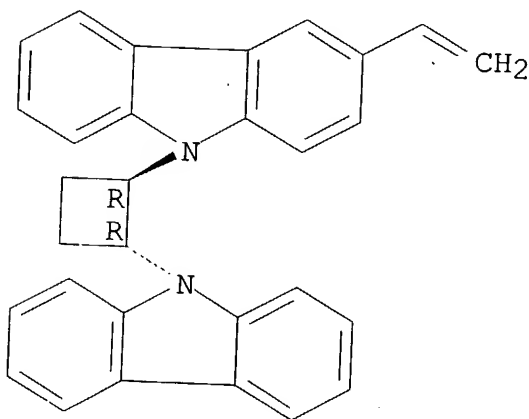
CN 9H-Carbazole, 9-[2-(9H-carbazol-9-yl)cyclobutyl]-3-ethenyl-, trans-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 80217-96-5

CMF C30 H24 N2

Relative stereochemistry.



RN 80218-52-6 ZCAPLUS

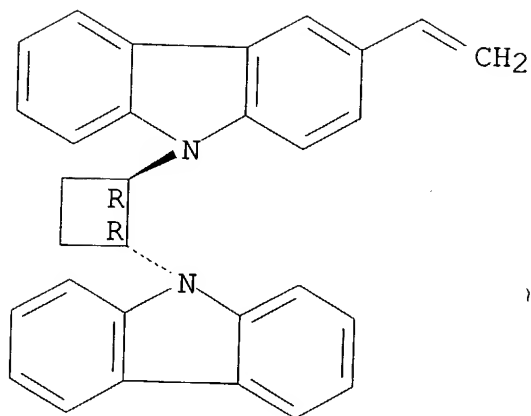
CN 9H-Carbazole, 9-[2-(9H-carbazol-9-yl)cyclobutyl]-3-ethenyl-, trans-, polymer with 3-ethenyl-9-ethyl-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 80217-96-5

CMF C30 H24 N2

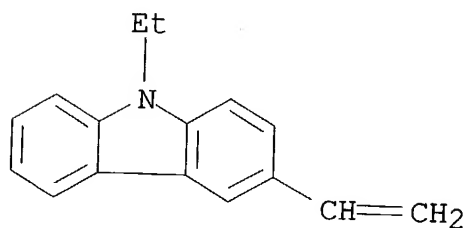
Relative stereochemistry.



CM 2

CRN 1486-07-3

CMF C16 H15 N



IT 80218-51-5 80218-52-6
(photocond. of unsensitized, for electrophotog.)

L8 ANSWER 17 OF 19 ZCAPLUS COPYRIGHT 2004 ACS on STN
1983:540748 Document No. 99:140748 Design, synthesis, and excited
state interactions of photoresponsive polymers. Tazuke, Shigeo;
Inoue, Takashi (Res. Lab. Resour. Util., Tokyo Inst. Technol.,
Yokohama, Japan). Proc. IUPAC, I. U. P. A. C., Macromol. Symp.,
28th, 234. Int. Union Pure Appl. Chem.: Oxford, UK. (English) 1982.
CODEN: 50DXAF.

AB Polymers prep'd. from trans-1,2-dicarbazolylcyclobutane (I) had
photocond. better than or comparable to poly(9-vinylcarbazole). I
groups in the polymers maintained the sufficient interchromophore
interactions for energy migration, but not for excimer formation. A
high initial surface charge, slow dark decay, and short decay half
time for I polymers were det'd. from xerog. discharge patterns.

IT 87318-35-2P 87318-37-4P

(prepn. and photocond. of)

RN 87318-35-2 ZCAPLUS

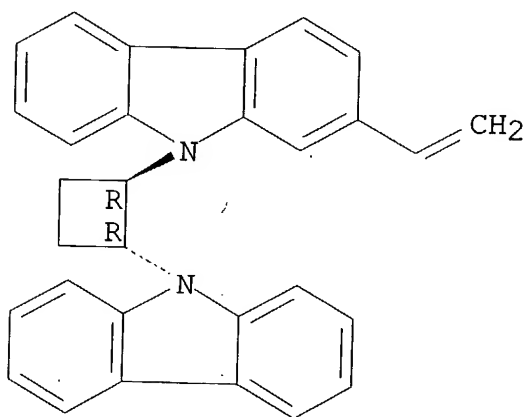
CN 9H-Carbazole, 9-[2-(9H-carbazol-9-yl)cyclobutyl]-2-ethenyl-, trans-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 87318-34-1

CMF C30 H24 N2

Relative stereochemistry.



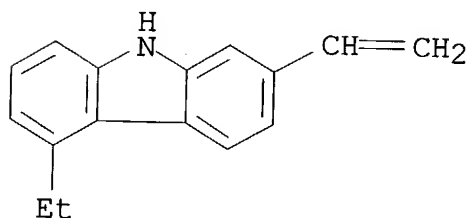
RN 87318-37-4 ZCAPLUS

CN 9H-Carbazole, 2-ethenyl-5-ethyl-, polymer with trans-9-[2-(9H-carbazol-9-yl)cyclobutyl]-2-ethenyl-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 87318-36-3

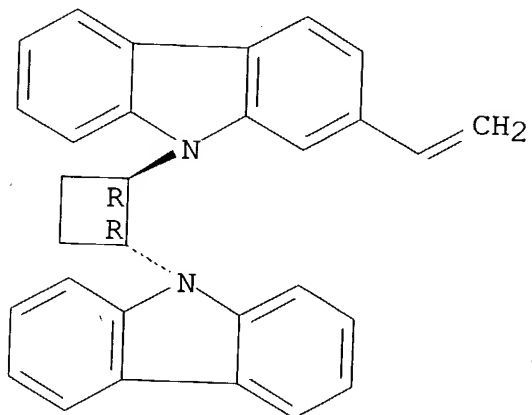
CMF C16 H15 N



CM 2

CRN 87318-34-1
CMF C30 H24 N2.

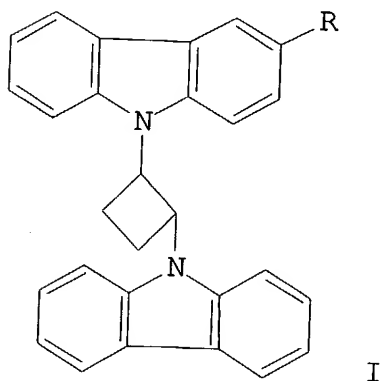
Relative stereochemistry.



IT 87318-35-2P 87318-37-4P
(prepn. and photocond. of)

L8 ANSWER 18 OF 19 ZCAPLUS COPYRIGHT 2004 ACS on STN
1983:143977 Document No. 98:143977 trans-1-(3-Vinyl-9-carbazolyl)-2-(9-carbazolyl)-cyclobutane and its photoconductive polymers. (Tafu, Shigeo, Japan; Permachem Asia, Ltd.). Jpn. Kokai Tokkyo Koho JP 57179159 A2 19821104 Showa, 5 pp. (Japanese). CODEN: JKXXAF.
APPLICATION: JP 1981-62536 19810427.

GI



I

AB The reaction of trans-I (R = CHO) (II) [77101-72-5] with Ph3P:CH2 [3487-44-3] gave trans-I (R = CH:CH2) (III) [80217-96-5], which was

polymd. alone or with 9-ethyl-3-vinylcarbazole to form photoconductive polymers. Thus, adding 33.22 g Ph₃PMe⁺ Br⁻ to 5.54 g NaH in DMSO, adding 35 g II, and keeping the mixt. 1.5 h at room temp. gave 63% III.

IT 80218-51-5P 80218-52-6P

(photoconductive, manuf. of)

RN 80218-51-5 ZCAPLUS

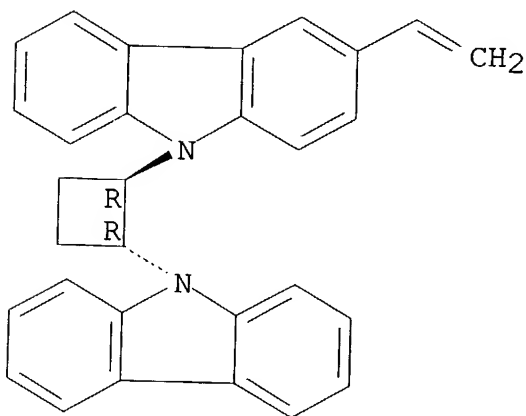
CN 9H-Carbazole, 9-[2-(9H-carbazol-9-yl)cyclobutyl]-3-ethenyl-, trans-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 80217-96-5

CMF C30 H24 N2

Relative stereochemistry.



RN 80218-52-6 ZCAPLUS

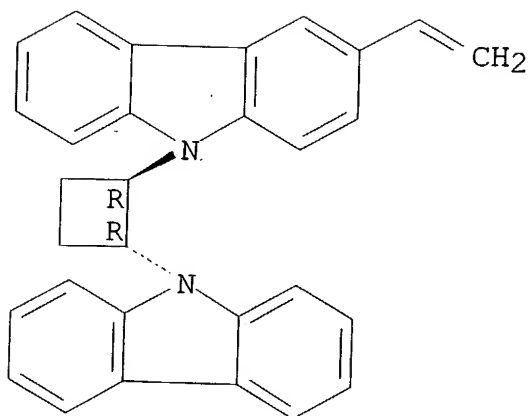
CN 9H-Carbazole, 9-[2-(9H-carbazol-9-yl)cyclobutyl]-3-ethenyl-, trans-, polymer with 3-ethenyl-9-ethyl-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 80217-96-5

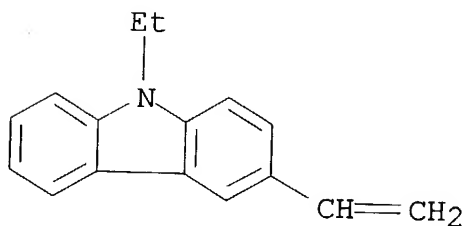
CMF C30 H24 N2

Relative stereochemistry.



CM 2

CRN 1486-07-3
CMF C16 H15 N



IT 80218-51-5P 80218-52-6P
(photoconductive, manuf. of)

L8 ANSWER 19 OF 19 ZCAPLUS COPYRIGHT 2004 ACS on STN
1982:35806 Document No. 96:35806 Poly[trans-1-(3-vinyl-9-carbazolyl)-2-(9-carbazolyl)cyclobutane]. Synthesis and comparison with poly(9-ethyl-3-vinylcarbazole). Inoue, Takashi; Tazuke, Shigeo (Res. Lab. Resour. Util., Tokyo Inst. Technol., Yokohama, 227, Japan). Journal of Polymer Science, Polymer Chemistry Edition, 19(11), 2861-8 (English) 1981. CODEN: JPLCAT. ISSN: 0449-296X.
AB trans-1-(3-Vinyl-9-carbazolyl)-2-(9-carbazolyl)cyclobutane (I) [80217-96-5] was prepd. and cationically homo- or copolymd. with 9-ethyl-3-vinylcarbazole (II). I polymd. to high-mol.-wt. (>105) polymer [80218-51-5] with good yields, although its polymerizability was lower than that of II. The compn. of I-II copolymer [80218-52-6] was detd. by gel permeation chromatog. anal., based on the remaining monomer ratio.

Fluorescence spectroscopy indicated that I polymer did not form excimers. Excimer emission gradually appeared with increasing II content in the copolymer. The lack of excimer emission in I homopolymers was attributed to crowded and sterically distorted chromophore assemblies. ¹H- and ¹³C-NMR spectroscopy of cyclobutane groups in the I polymer compared with that in trans-1,2-bis(9-carbazolylcyclobutane) model compd. supported the conclusion derived from fluorescence.

IT 80218-52-6

(excimer fluorescence of)

RN 80218-52-6 ZCAPLUS

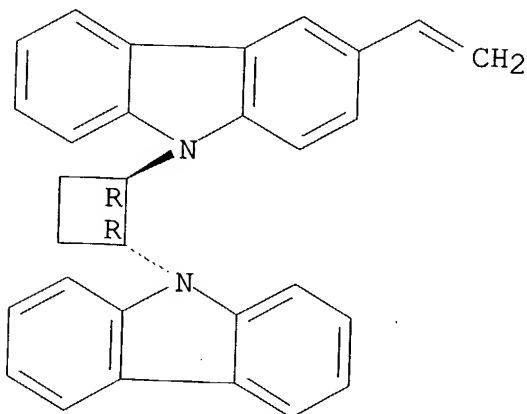
CN 9H-Carbazole, 9-[2-(9H-carbazol-9-yl)cyclobutyl]-3-ethenyl-, trans-, polymer with 3-ethenyl-9-ethyl-9H-carbazole (9CI) (CA INDEX NAME)

CM 1

CRN 80217-96-5

CMF C30 H24 N2

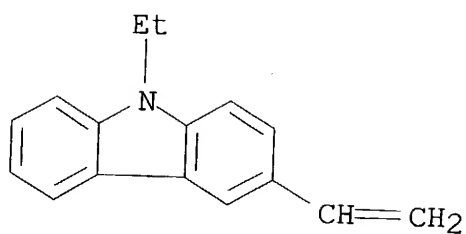
Relative stereochemistry.



CM 2

CRN 1486-07-3

CMF C16 H15 N



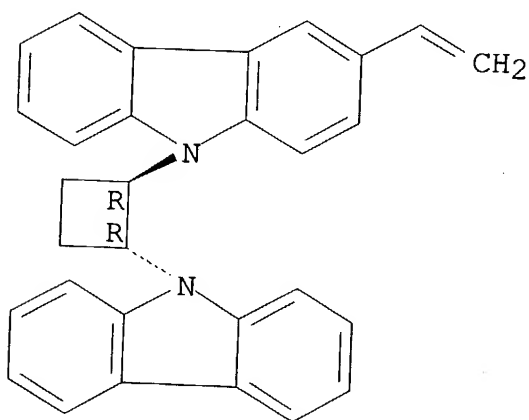
IT 80218-51-5P
(prepn. of)
RN 80218-51-5 ZCAPLUS
CN 9H-Carbazole, 9-[2-(9H-carbazol-9-yl)cyclobutyl]-3-ethenyl-, trans-,
homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 80217-96-5

CMF C30 H24 N2

Relative stereochemistry.



IT 80218-52-6
(excimer fluorescence of)
IT 80218-51-5P
(prepn. of)